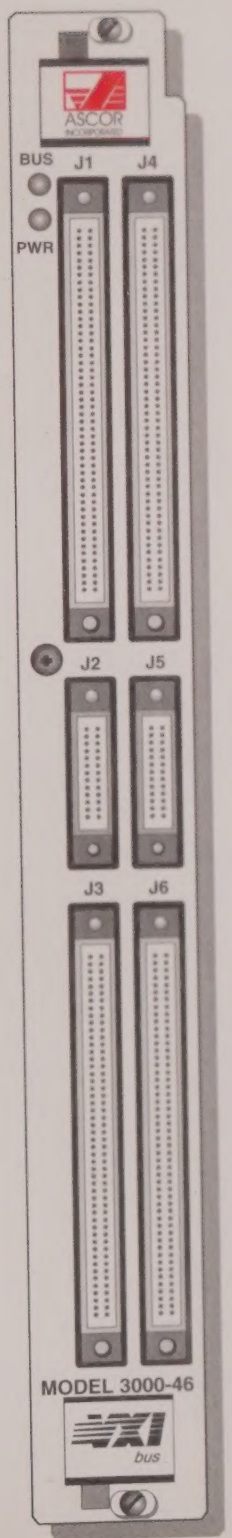
ASCOR
INCORPORATED
A Giga-tronics Company



MODEL 3000-46
FLEX SWITCH
VXI MODULE

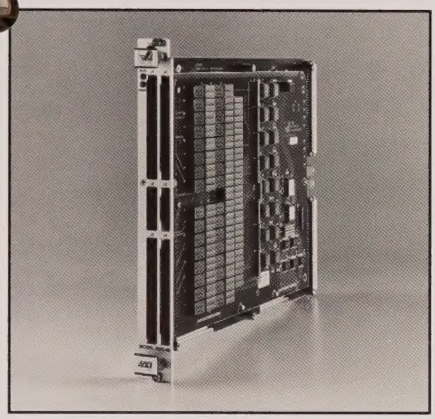
Technical Manual

Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_05486

MODEL 3000-46

ASCOR Model 3000-46 "Flex Switch" VXI Module



ASCOR's Model 3000-46 "FLEX SWITCH" VXI Module is a high-density mixed signal switch, for both digital and analog applications. The module consists of two groups of relays. One group can be operated as two-wire isolation relays. The isolation relays can be used to isolate high-speed signals from a digital subsystem. These same isolation relays are connected to a second group of relays that can be organized as a highly configurable one or two-wire multiplexer. One application for the multiplexer is to connect signals to analog instruments, for parametric measurements. The multiplexer configurations are under program control.

- ***The unit is a C size slot VXI Module.***
- ***Register Based Programming, for quick efficient relay programming.***
- ***The "Flex Switch" contains two groups of shielded relays, used for isolation and multiplexing, that are all program configurable.***
- ***The first group of shielded relays consists of 64 DPST relays; which can be operated as 64 two-wire isolation relays, or 128 single wire, switched in pairs. Minimum bandwidth 100 MHz.***
- ***The second group of shielded relays, in the module, can be programmed as a single wire or two-wire multiplexer. The following configurations are available under program control.***

  As a one-wire multiplexer: sixteen (16) 8 x 1; or eight (8) 16 x 1; or four (4) 32 x 1; or two (2) 64 x 1.

  As a two-wire multiplexer: eight (8) 8 x 1; or four (4) 16 x 1; or two (2) 32 x 1; or one (1) 64 x 1.
- ***The 3000-46 utilizes common connector pins for both the isolation relays and the multiplexer. This connector design reduces cabling costs and provides for improved signal performance as the two groups are connected internally. This connection improves both the bandwidth and the signal to noise ratio for both groups of relays.***
- ***All relays are coaxially shielded for maximum signal to noise ratio and bandwidth.***
- ***External ground reference inputs are available for measurements relative to these references.***

High Performance "Flex Switch" Module

ASCOR has designed a comprehensive family of high density VXI Switching Modules tailored to allow maximum flexibility for the system integrator. ASCOR's proven experience in designing high performance, high density switching solutions is incorporated in this design. Ideal for switching frequency stimuli and instrument signals to and from the UUT, this module provides the ultimate in combining digital and analog test capabilities into one compact unit. By combining the analog measurement multiplexing and high speed digital switching in one high performance module, the test engineer can perform test measurements with signal fidelity far superior to that achieved with long cable runs.

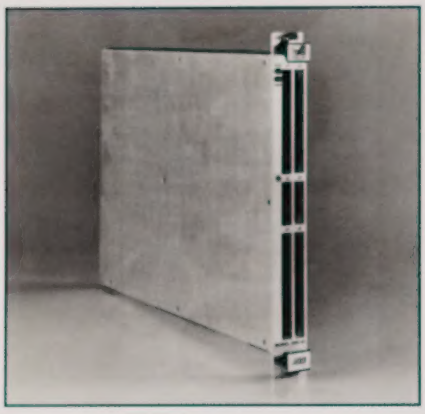
High Density And Maximum Configurability

The ASCOR Model 3000-46 module is a highly configurable module for supporting various high frequency ATE test applications. The module provides high speed two-wire isolation switching for sixty-four (64) channels to digital subsystems. Attached to the isolation relays, the unit provides a reconfigurable single or two-wire multiplexer. The two-wire option can be programmed as eight (8) 1 x 8; or four (4) 1 x 16; or two (2) 1 x 32; or one (1) 1 x 64 multiplexer. The single wire option can be programmed as sixteen (16) 1 x 8; or eight (8) 1 x 16; or four (4) 1 x 32; or two (2) 1 x 64. By incorporating the multiplexer portion of the 3000-46 into the test system design, customers can verify input/output conditions to the Unit Under Test (UUT) prior to connecting the digital source signals to the UUT. Using this test scenario, users of the 3000-46 can potentially prevent damage to both the UUT and instruments within the test system as well as monitor signals during test applications.

ASCOR INCORPORATED
A Giga-tronics Company

MODEL 3000-46

ASCOR Model 3000-46 "Flex Switch" VXI Module



ASCOR's Model 3000-46 "Flex Switch" provides an innovative solution to handling both digital and analog signal switching.

Self Testing

Like all ASCOR VXI Modules, the Model 3000-46 incorporates internal self test hardware which includes the ability to test, read back and verify the integrity of the program control circuitry.

All ASCOR VXI Modules also feature a unique built-in service record, for tracking repairs to the Module by time and date the repair was actually performed.

ASCOR also provides a 3 year limited warranty on all VXI Modules.

Quiet Ideas. Powerful Solutions.
ASCOR, founded in 1987 and headquartered in California's Silicon Valley, provides a complete line of VXI Switching and Digital Modules for industrial, medical, scientific and governmental automatic test applications. ASCOR VXI products are the quietest, cleanest, highest density VXI modules commercially available.

Specifications

- VXI, single slot "C" size module
- Programming is register based ***VXIplug&play***
- VXI Power +5 volts@2 amps
- Electrical:
  - -Sixty-four (64) DPST Relays:
    - Maximum switching Voltage (DC, Vpeak, resistive) 200volts
    - Maximum switching Current (DC, Vpeak, resistive) 0.5 Amps
    - Maximum switching power 10 Watts
    - Carry Current (Vdc, Vrms) 1.5 Amps
    - Life Expectancy (Signal<1.0V; 0.01A) 1,000 x 10^6 cycles
  - - Single/Two-wire Multiplexer
    - Maximum switching Voltage (DC, Vpeak, resistive) 200volts
    - Maximum switching Current (DC, Vpeak, resistive) 0.5 Amps
    - Maximum switching power 10 Watts
    - Carry Current (Vdc, Vrms) 1.5 Amps
    - Life Expectancy (Signal<1.0V; 0.01A) 1,000 x 10^6 cycles
- Isolation >10^7ohms
- Bandwidth (-3 dB)

	differential	single ended
-1 x 1 two-wire switch	>175MHz	>100MHz
-1 x 8 two-wire multiplexer	>95MHz	>74MHz
-1 x 16 two-wire multiplexer	>90MHz	>64MHz
-1 x 32 two-wire multiplexer	>85MHz	>57MHz

- Environmental Specification
  - Temperature
    - Operating: 0° to 55° C
    - Storage: -40° to 75° C
  - Relative Humidity
    - Operating: 10 to 90% non-condensing
    - Storage: 0 to 95% non-condensing

Protecting Your Investment With VXIMAX™ 16/32

To address tomorrow's applications, requiring even greater capabilities, ASCOR's 3000-46 supports either 16-bit or 32-bit data bus paths through its VXIMAX 16/32 VXIbus interface.

ASCOR 3000-46 customers can upgrade to 32-bit from 16-bit with VXIMAX's field upgradability.

CE The CE Mark indicates that the product has completed and passed rigorous testing in the area of RF Emissions, Immunity to Electromagnetic Disturbances and complies with European electrical safety standards.

Ordering Information:
- ASCOR 3000-46 VXI Module
- Installation Kit (includes hardware to mate with one module) PN: 89800360

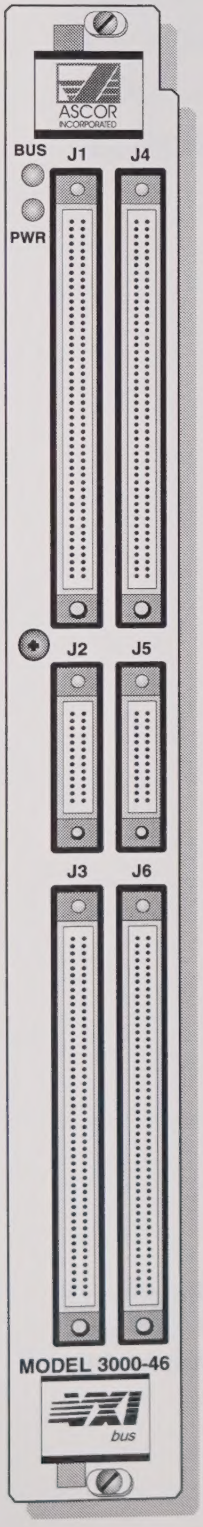
Distributor Information:

ASCOR INCORPORATED
A Giga-tronics Company

47790 Westinghouse Drive, Fremont, CA 94539-7485
Telephone: (510)490-2300, Fax: (510)490-8493, Website: www.ascor-inc.com

©1997 ASCOR Incorporated. Specifications subject to change without notice. 12/97

ASCOR
INCORPORATED
A Giga-tronics Company



MODEL 3000-46
FLEX SWITCH
VXI MODULE

REV: A
DATE: 2/4/98

Manual Part No. 07500770

Technical Manual

ASCOR
INCORPORATED
A Giga-tronics Company

MODEL 3000-46

Flex Switch VXI Module Technical Manual

Prepared by ASCOR Inc.
47790 Westinghouse Drive
Fremont, CA. 94539
(510) 490-2300
FAX (510) 490-8493

Copyright © 1997 by ASCOR Inc., Fremont, California. Printed in the United States of America. All rights reserved. Contents of this publication may not be reproduced in any form without permission of the copyright owner.

Product Warranty

Your ASCOR VXI module comes with a ***3 year*** limited warranty. ASCOR warranty obligations are described by and limited to the terms set forth below and apply only in the United States of America. ASCOR warrants this VXI module against defect in material and workmanship for a period of three (3) years from the date of purchase from ASCOR or an authorized ASCOR agent. This warranty applies only to the original purchaser of the VXI module and is not transferable unless authorized in writing by ASCOR in advance of such transfer. This warranty does not cover any incompatibilities due to the user's test environment, hardware, software or any other related system configuration in which the ASCOR VXI module interfaces. Proof of purchase will be required BEFORE any warranty consideration by ASCOR occurs.

This warranty does not cover any damage caused by negligence, non authorized modifications, or parts installed or removed without prior written permission from ASCOR.

This warranty does not apply if the VXI module has been damaged by accident, abuse, misuse, or misapplication, nor as a result of service to the product by anyone other than ASCOR or an authorized ASCOR representative. ASCOR VXI products are not designed for or permitted to be used in on-line control systems in hazardous environments such as operation of nuclear facilities, aircraft navigation or control or direct life support. If you use the ASCOR products in such hazardous environments, this warranty is immediately null and void.

ASCOR IS NOT RESPONSIBLE FOR ANY LOST PROFITS, LOST SAVINGS OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGE ARISING OUT OF THE USE OF, OR INABILITY TO USE, THIS PRODUCT. THIS INCLUDES DAMAGE TO PROPERTY AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No ASCOR employee, distributor, agent, seller or reseller, or person(s) alleging to represent ASCOR is authorized to make any modification, extension or addition to this warranty.

Some states may not allow limitation of implied warranties, or exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights. You may have other rights which may vary from state to state.

This warranty applies to all ASCOR VXI modules and is governed by the laws of the State of California.

Table of Contents

Introduction

Section 1

Introduction 1
General Description 1
Block Diagram Of Flex Switch 3
Electrical Specifications 4
Mechanical Specifications 5
Environmental Specifications 6
ASCOR Model 3000-46 Features 7
J1 Connector Configuration 8
J2 Connector Configuration 9
J3 Connector Configuration 10
J4 Connector Configuration 11
J5 Connector Configuration 12
J6 Connector Configuration 13
Memory Map 14
Register Map Motherboard 16
Register Map Daughterboard 20

Table of Contents

List Of Figures

Section 1

Figure 1: Block Diagram of Flex Switch 3
Figure 2: Front View 7
Figure 3: J1 Connector 8
Figure 4: J2 Connector 9
Figure 5: J3 Connector 10
Figure 6: J4 Connector 11
Figure 7: J5 Connector 12
Figure 8: J6 Connector 13

Section 2

Figure 9: Model 3000-46 Flex Switch 1
Figure 10: Model 3000-46 Flex Switch (Rear View) 3
Figure 11: Model 3000-46 Flex Switch 4

Introduction

This User Guide provides a basic description of the Model 3000-46, Flex Switch module. Also included are installation and input connection procedures, programming information, service and maintenance information.

General Description

The Model 3000-46 is a versatile switch array for those who need mix signal capability. The module has sixty four (64) DPST coaxially shielded relays for dual wire isolation. These relays can be used to switch signal paths to a digital subsystem. Bandwidth of these paths is greater than 100 MHz.

At the input of these isolation relays are sixteen (16) 8x1 trees which are arranged as eight (8) pairs of 8x1 trees with individual control of the + and - side of the differential lines in the trees. Additionally, the 8x1 trees can be combined to form four (4) pairs of 16x1 trees, or two pairs of (2) 32x1 trees, or a single pair of 64x1 tree. All of the combinations of trees allow independent control of the + and - side of the tree for true differential measurement across any path. This capability allows 64 channels of signals to be switch to either a digital subsystem or they can be individually switched to analog test equipment. Because all of these options can be accomplished through software control, this switch module provides maximum Flexibility regardless of the switch tree selected.

All of the relays are coaxially shielded to provide superior performance. The isolation relays are dual coaxially shielded reed relays with a common control coil (DPST). These isolation relays provide support for high speed digital performance, 100 MHz minimum bandwidth (150 MHz typical). The switch trees are coaxially shielded SPST for maximum analog versatility at >80 MHz bandwidth. Each of the sixteen 8x1 trees connect to a switch array to allow for combinations as 8x1, 16x1, 32x1, or 64x1 to the output connectors, J2 and J5. There are sixteen 8x1 outputs, eight 16x1 outputs, four 32x1 outputs, and two 64x1 outputs. They can be all use together or switched out to provide superior performance by isolating signal paths to improve the transmission line.
With this flexible combination of utilizing the switch trees, up to 30 instruments can be connected to the Model 3000-46, Flex-switch in addition to the 64 pairs of digital signals.

Additionally, two external references are provided as well as analog and chassis ground for measurements of the + or - side of the inputs to be measured against the 4 references. Two additional reference inputs are provided on the daughter board (J5) which are assign to the - side of the measurement trees.

General Description (Continued)

In a typical application without the 3000-46, the system designer would be required to use several modules and wire them together to get mix signal capability. This inter-module wiring carries with it the inherent loss of bandwidth due to spliced wires and other wiring requirements associated with inter-module wiring. The ASCOR 3000-46 Flex-switch offers the customer the ability to combine all of the different modules within a single module with exceptional low noise and high bandwidth performance.

The connectors are Robinson Nugent type P50E series ribbon cable connector. This connector accepts dual ribbon cables with 0.050" centers. This series of connector has a high density 0.050" pitch contacts which accepts standard 0.050" pitch ribbon on each side of the connector. The signal pins are located on J1, J3, J4, and J6. The Output channel ports are located on J2 and J5. Isolated Pins (digital) 1-16 are located on J1, even number pins (a ribbon cable). The mixed signal pins, Pins 1-16 are located on J1, odd number pins (other ribbon cable). This organization allows convenient cabling schemes using standard ribbon cable. The digital signals are kept on one ribbon cable while the mix signal pin is on another ribbon cable. Pins 17-32 are organized in the same manner on J3. Pins 33-48 are organized in the same manner on J4. Pins 49-64 are organized in the same manner on J6. The outputs of the switch trees and the reference inputs are located on J2 and J5. Refer to connector diagram for exact location of the signals. Associated with each signal pin is the shield. Optimum performance is achieved if shielded wiring is used with the 3000-46. The adjacent shield provides a short ground path. If ribbon cable is used, then the shield pins will provide a ground-signal-ground wiring scheme. The analog ground should be tied to the associated grounds of the signal source. This avoids ground loops and minimized noise pickup through the analog ground.

Block Diagram Of Flex Switch

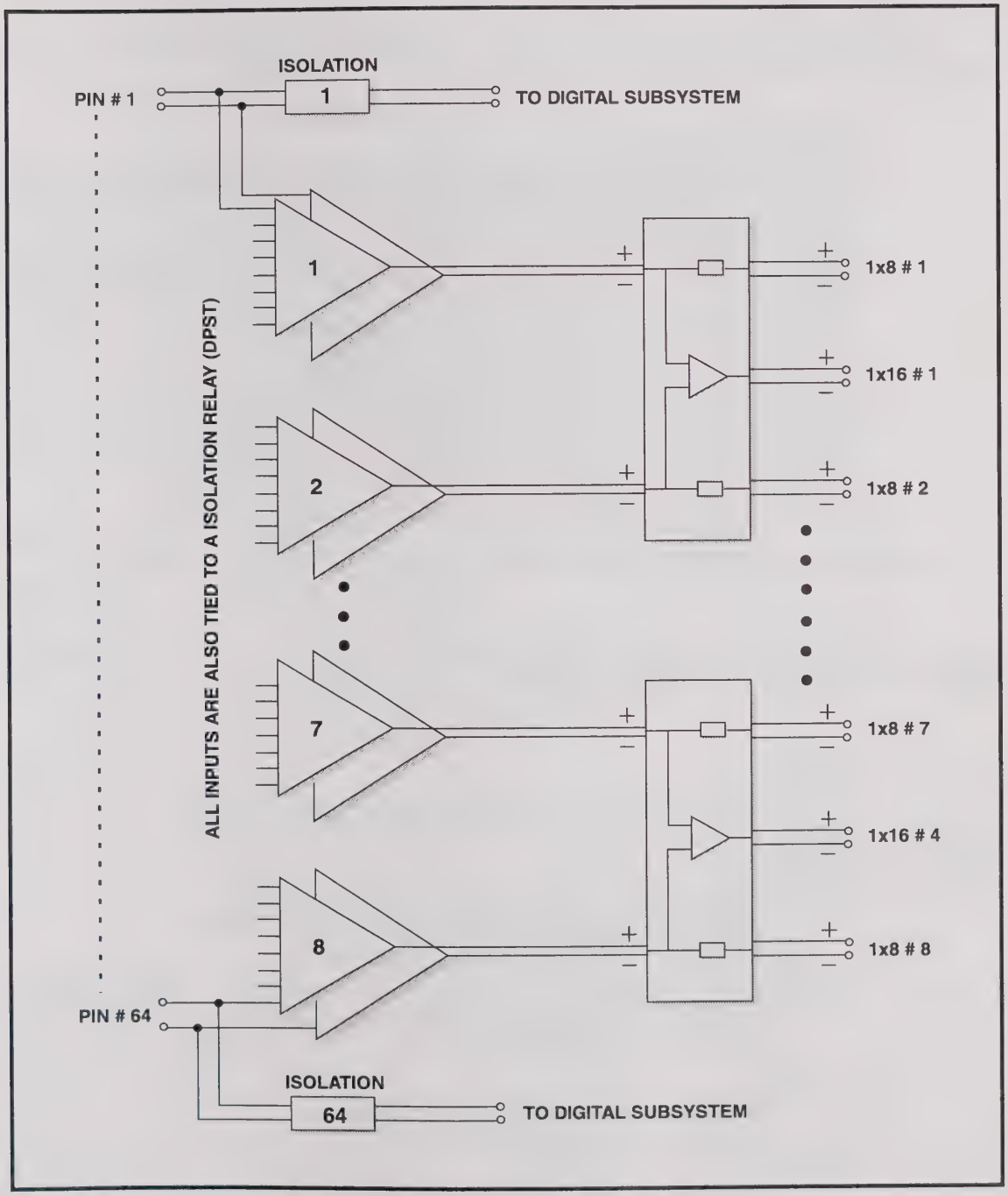


Figure: 1 Block Diagram of Flex Switch

General Description (Continued)

The Model 3000-46 is a register based VXI module. Each register is 16 bits. They are organized in the following manner:

Register	Description
8000	Group 1: 8x1 trees (high/low) to I/O 1-8 (+/-)
8002	Group 2: 8x1 trees (high/low) to I/O 9-16 (+/-)
8004	Isolation pins 1-16 (digital +/-) to I/O 1-16 (+/-)
8006	Group 3: 8x1 trees (high/low)) to I/O 17-24 (+/-)
8008	Group 4: 8x1 trees (high/low)) to I/O 25-32 (+/-)
800A	Isolation pins 17-32 (digital +/-) to I/O 17-32 (+/-)
800C	Output Control for Group 1-4 (8x1, 16x1)
800E	Output Control for Group 1-4 (32x1, 64x1, external references)
8020	Group 5: 8x1 trees (high/low) to I/O 33-40 (+/-)
8022	Group 6: 8x1 trees (high/low) to I/O 41-48 (+/-)
8024	Isolation pins 33-48 (digital +/-) to I/O 33-48 (+/-)
8026	Group 7: 8x1 trees (high/low)) to I/O 49-56 (+/-)
8028	Group 8: 8x1 trees (high/low)) to I/O 57-64 (+/-)
802A	Isolation pins 49-64 (digital +/-) to I/O 49-64 (+/-)
802C	Output Control for Group 5-8 (8x1, 16x1)
802E	Output Control for Group 5-8 (32x1, 64x1, external references)

See register maps (on page 16 thru page 23) for description and relay number

Electrical Specifications

Voltage: 200VDC max.
Current: 1.5A Carry, 0.5 A Switched
Power: 10 Watts
Bandwidth: worst case

Isolation relays (to digital):
- >100 MHz: single ended into 50 ohms, 150 MHz typical
- >150 MHz: differential across inputs (+/-)

8x1 Tree:
- >75 MHz : single ended into 50 ohms
- >90 MHz: differential

16x1 Tree:
- >60 MHz : single ended into 50 ohms
- >90 MHz: differential

32x1 Tree:
- >55 MHz : single ended into 50 ohms
- >85 MHz: differential

Electrical Specifications (Continued)

64x1 Tree:
>55 MHz : single ended into 50 ohms
>85 MHz: differential

Characteristic Impedance:
Crosstalk:
Register-based VXI Module
VXI single slot
VXI plug&play
Power: + 5 volts @ 1.0 amp quiescent; 20mA per relay

Mechanical Specifications

Weight: 4 lbs and 10 Oz.

Dimensions: Single-wide "C" size VXI

Connectors: (J1,J4,J3 and J6) Robinson Nugent
P50E-100P1-SR1-TG
(J2 and J5) Robinson Nugent
P50E-26P1-SR1-TG

Mate: Robinson Nugent, IDC Connector,
P50E series, 100 position, socket P50E-100S-TG

Robinson Nugent, IDC Connector,
P50E series, 26 position, socket P50E-26S-TG

Installation Kit: Installation Kit, 89800360, Available on request (Optional).
Includes a full complement of mating connectors.

Environmental Specifications

Temperature:

Operating: 0 ° to 55° C
Storage: -40° to 75 ° C

Relative Humidity:

Operating: 1 0 to 90% non-condensing
Storage: 0 to 95% non-condensing

ASCOR Model 3000-46

Features

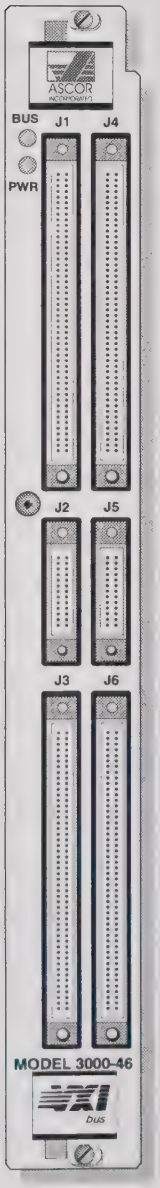


Figure 2: Front View

- *True Mix Signal Switch.*
- *64 Coaxially Shielded DPST Isolation Relays.*
- *16 8x1 Shielded Trees or 8-8x1 Dual Wire.*
- *8 16x1 Shielded Trees or 4-16x1 Dual Wire.*
- *4 32x1 Shield Trees or 2-32x1 Dual or 2 64x1 Shielded Trees or 1- 64x1 Dual Wire.*
- *Measure to 4 External Inputs, Analog Ground or Earth Ground.*
- *100MHz Bandwidth Through Isolation Paths (Digital Path).*
- *50MHz Bandwidth, worst case Through Switch Tree (in to 50 ohm).*

J1 Connector configuration

Figure 3: J1 Connector

CONNECTOR DESCRIPTION

DESCRIPTION	PIN	PIN	DESCRIPTION
ANALOG SHIELD	100	99	ANALOG SHIELD
PIN 1 IN +	98	97	PIN 1 OUT +
PIN 1 IN -	96	95	PIN 1 OUT -
ANALOG SHIELD	94	93	ANALOG SHIELD
PIN 2 IN +	92	91	PIN 2 OUT +
PIN 2 IN -	90	89	PIN 2 OUT -
ANALOG SHIELD	88	87	ANALOG SHIELD
PIN 3 IN +	86	85	PIN 3 OUT +
PIN 3 IN -	84	83	PIN 3 OUT -
ANALOG SHIELD	82	81	ANALOG SHIELD
PIN 4 IN +	80	79	PIN 4 OUT +
PIN 4 IN -	78	77	PIN 4 OUT -
ANALOG SHIELD	76	75	ANALOG SHIELD
PIN 5 IN +	74	73	PIN 5 OUT +
PIN 5 IN -	72	71	PIN 5 OUT -
ANALOG SHIELD	70	69	ANALOG SHIELD
PIN 6 IN +	68	67	PIN 6 OUT +
PIN 6 IN -	66	65	PIN 6 OUT -
ANALOG SHIELD	64	63	ANALOG SHIELD
PIN 7 IN +	62	61	PIN 7 OUT +
PIN 7 IN -	60	59	PIN 7 OUT -
ANALOG SHIELD	58	57	ANALOG SHIELD
PIN 8 IN +	56	55	PIN 8 OUT +
PIN 8 IN -	54	53	PIN 8 OUT -
ANALOG SHIELD	52	51	ANALOG SHIELD
PIN 9 IN +	50	49	PIN 9 OUT +
PIN 9 IN -	48	47	PIN 9 OUT -
ANALOG SHIELD	46	45	ANALOG SHIELD
PIN 10 IN +	44	43	PIN 10 OUT +
PIN 10 IN -	42	41	PIN 10 OUT -
ANALOG SHIELD	40	39	ANALOG SHIELD
PIN 11 IN +	38	37	PIN 11 OUT +
PIN 11 IN -	36	35	PIN 11 OUT -
ANALOG SHIELD	34	33	ANALOG SHIELD
PIN 12 IN +	32	31	PIN 12 OUT +
PIN 12 IN -	30	29	PIN 12 OUT -
ANALOG SHIELD	28	27	ANALOG SHIELD
PIN 13 IN +	26	25	PIN 13 OUT +
PIN 13 IN -	24	23	PIN 13 OUT -
ANALOG SHIELD	22	21	ANALOG SHIELD
PIN 14 IN +	20	19	PIN 14 OUT +
PIN 14 IN -	18	17	PIN 14 OUT -
ANALOG SHIELD	16	15	ANALOG SHIELD
PIN 15 IN +	14	13	PIN 15 OUT +
PIN 15 IN -	12	11	PIN 15 OUT -
ANALOG SHIELD	10	9	ANALOG SHIELD
PIN 16 IN +	8	7	PIN 16 OUT +
PIN 16 IN -	6	5	PIN 16 OUT -
ANALOG SHIELD	4	3	ANALOG SHIELD
CHASSIS GND	2	1	CHASSIS GND

J2 Connector configuration

J2

Figure 4: J2 Connector

CONNECTOR DESCRIPTION

DESCRIPTION	PIN	PIN	DESCRIPTION
ANALOG SHIELD	26	25	ANALOG SHIELD
GP1, 8x1 OUT +	24	23	GP2, 8x1 OUT +
GP1, 8x1 OUT -	22	21	GP2, 8x1 OUT -
ANALOG SHIELD	20	19	ANALOG SHIELD
GP1-2, 16x1 OUT +	18	17	GP3-4, 16x1 OUT +
GP1-2, 16x1 OUT -	16	15	GP3-4, 16x1 OUT -
ANALOG SHIELD	14	13	ANALOG SHIELD
GP3, 8x1 OUT +	12	11	GP4, 8x1 OUT +
GP3, 8x1 OUT -	10	9	GP4, 8x1 OUT -
ANALOG SHIELD	8	7	ANALOG SHIELD
GP1-4, 32x1 OUT +	6	5	EXT REF 1+
GP1-4, 32x1 OUT -	4	3	EXT REF 2+
ANALOG SHIELD	2	1	ANALOG SHIELD

J3 Connector configuration

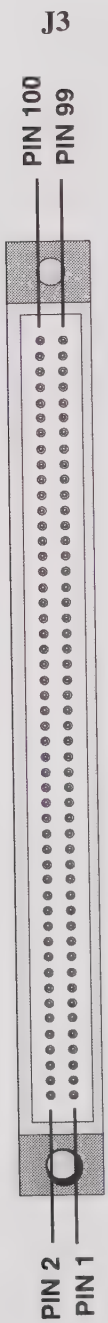


Figure 5: J3 Connector

CONNECTOR DESCRIPTION

DESCRIPTION	PIN	PIN	DESCRIPTION
ANALOG SHIELD	100	99	ANALOG SHIELD
PIN 17 IN +	98	97	PIN 17 OUT +
PIN 17 IN -	96	95	PIN 17 OUT -
ANALOG SHIELD	94	93	ANALOG SHIELD
PIN 18 IN +	92	91	PIN 18 OUT +
PIN 18 IN -	90	89	PIN 18 OUT -
ANALOG SHIELD	88	87	ANALOG SHIELD
PIN 19 IN +	86	85	PIN 19 OUT +
PIN 19 IN -	84	83	PIN 19 OUT -
ANALOG SHIELD	82	81	ANALOG SHIELD
PIN 20 IN +	80	79	PIN 20 OUT +
PIN 20 IN -	78	77	PIN 20 OUT -
ANALOG SHIELD	76	75	ANALOG SHIELD
PIN 21 IN +	74	73	PIN 21 OUT +
PIN 21 IN -	72	71	PIN 21 OUT -
ANALOG SHIELD	70	69	ANALOG SHIELD
PIN 22 IN +	68	67	PIN 22 OUT +
PIN 22 IN -	66	65	PIN 22 OUT -
ANALOG SHIELD	64	63	ANALOG SHIELD
PIN 23 IN +	62	61	PIN 23 OUT +
PIN 23 IN -	60	59	PIN 23 OUT -
ANALOG SHIELD	58	57	ANALOG SHIELD
PIN 24 IN +	56	55	PIN 24 OUT +
PIN 24 IN -	54	53	PIN 24 OUT -
ANALOG SHIELD	52	51	ANALOG SHIELD
PIN 25 IN +	50	49	PIN 25 OUT +
PIN 25 IN -	48	47	PIN 25 OUT -
ANALOG SHIELD	46	45	ANALOG SHIELD
PIN 26 IN +	44	43	PIN 26 OUT +
PIN 26 IN -	42	41	PIN 26 OUT -
ANALOG SHIELD	40	39	ANALOG SHIELD
PIN 27 IN +	38	37	PIN 27 OUT +
PIN 27 IN -	36	35	PIN 27 OUT -
ANALOG SHIELD	34	33	ANALOG SHIELD
PIN 28 IN +	32	31	PIN 28 OUT +
PIN 28 IN -	30	29	PIN 28 OUT -
ANALOG SHIELD	28	27	ANALOG SHIELD
PIN 29 IN +	26	25	PIN 29 OUT +
PIN 29 IN -	24	23	PIN 29 OUT -
ANALOG SHIELD	22	21	ANALOG SHIELD
PIN 30 IN +	20	19	PIN 30 OUT +
PIN 30 IN -	18	17	PIN 30 OUT -
ANALOG SHIELD	16	15	ANALOG SHIELD
PIN 31 IN +	14	13	PIN 31 OUT +
PIN 31 IN -	12	11	PIN 31 OUT -
ANALOG SHIELD	10	9	ANALOG SHIELD
PIN 32 IN +	8	7	PIN 32 OUT +
PIN 32 IN -	6	5	PIN 32 OUT -
ANALOG SHIELD	4	3	ANALOG SHIELD
CHASSIS GND	2	1	CHASSIS GND

J4 Connector configuration

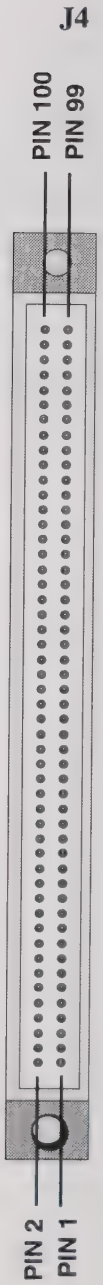


Figure 6: J4 Connector

CONNECTOR DESCRIPTION

DESCRIPTION	PIN	PIN	DESCRIPTION
ANALOG SHIELD	100	99	ANALOG SHIELD
PIN 33 IN +	98	97	PIN 33 OUT +
PIN 33 IN -	96	95	PIN 33 OUT -
ANALOG SHIELD	94	93	ANALOG SHIELD
PIN 34 IN +	92	91	PIN 34 OUT +
PIN 34 IN -	90	89	PIN 34 OUT -
ANALOG SHIELD	88	87	ANALOG SHIELD
PIN 35 IN +	86	85	PIN 35 OUT +
PIN 35 IN -	84	83	PIN 35 OUT -
ANALOG SHIELD	82	81	ANALOG SHIELD
PIN 36 IN +	80	79	PIN 36 OUT +
PIN 36 IN -	78	77	PIN 36 OUT -
ANALOG SHIELD	76	75	ANALOG SHIELD
PIN 37 IN +	74	73	PIN 37 OUT +
PIN 37 IN -	72	71	PIN 37 OUT -
ANALOG SHIELD	70	69	ANALOG SHIELD
PIN 38 IN +	68	67	PIN 38 OUT +
PIN 38 IN -	66	65	PIN 38 OUT -
ANALOG SHIELD	64	63	ANALOG SHIELD
PIN 39 IN +	62	61	PIN 39 OUT +
PIN 39 IN -	60	59	PIN 39 OUT -
ANALOG SHIELD	58	57	ANALOG SHIELD
PIN 40 IN +	56	55	PIN 40 OUT +
PIN 40 IN -	54	53	PIN 40 OUT -
ANALOG SHIELD	52	51	ANALOG SHIELD
PIN 41 IN +	50	49	PIN 41 OUT +
PIN 41 IN -	48	47	PIN 41 OUT -
ANALOG SHIELD	46	45	ANALOG SHIELD
PIN 42 IN +	44	43	PIN 42 OUT +
PIN 42 IN -	42	41	PIN 42 OUT -
ANALOG SHIELD	40	39	ANALOG SHIELD
PIN 43 IN +	38	37	PIN 43 OUT +
PIN 43 IN -	36	35	PIN 43 OUT -
ANALOG SHIELD	34	33	ANALOG SHIELD
PIN 44 IN +	32	31	PIN 44 OUT +
PIN 44 IN -	30	29	PIN 44 OUT -
ANALOG SHIELD	28	27	ANALOG SHIELD
PIN 45 IN +	26	25	PIN 45 OUT +
PIN 45 IN -	24	23	PIN 45 OUT -
ANALOG SHIELD	22	21	ANALOG SHIELD
PIN 46 IN +	20	19	PIN 46 OUT +
PIN 46 IN -	18	17	PIN 46 OUT -
ANALOG SHIELD	16	15	ANALOG SHIELD
PIN 47 IN +	14	13	PIN 47 OUT +
PIN 47 IN -	12	11	PIN 47 OUT -
ANALOG SHIELD	10	9	ANALOG SHIELD
PIN 48 IN +	8	7	PIN 48 OUT +
PIN 48 IN -	6	5	PIN 48 OUT -
ANALOG SHIELD	4	3	ANALOG SHIELD
CHASSIS GND	2	1	CHASSIS GND

J5 Connector configuration

J5

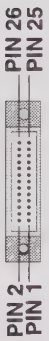


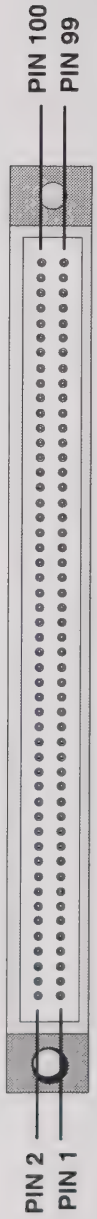
Figure 7: J5 Connector

CONNECTOR DESCRIPTION

DESCRIPTION	PIN	PIN	DESCRIPTION
ANALOG SHIELD	26	25	ANALOG SHIELD
GP5, 8x1 OUT +	24	23	GP6, 8x1 OUT +
GP5, 8x1 OUT -	22	21	GP6, 8x1 OUT -
ANALOG SHIELD	20	19	ANALOG SHIELD
GP5-6, 16x1 OUT +	18	17	GP7-8, 16x1 OUT +
GP5-6, 16x1 OUT -	16	15	GP7-8, 16x1 OUT -
ANALOG SHIELD	14	13	ANALOG SHIELD
GP7, 8x1 OUT +	12	11	GP8, 8x1 OUT +
GP7, 8x1 OUT -	10	9	GP8, 8x1 OUT -
ANALOG SHIELD	8	7	ANALOG SHIELD
GP5-8, 32x1 OUT +	6	5	EXT REF 3+
GP5-8, 32x1 OUT -	4	3	EXT REF 4+
ANALOG SHIELD	2	1	ANALOG SHIELD

J6 Connector configuration

J6



CONNECTOR DESCRIPTION

DESCRIPTION	PIN	PIN	DESCRIPTION
ANALOG SHIELD	100	99	ANALOG SHIELD
PIN 49 IN +	98	97	PIN 49 OUT +
PIN 49 IN -	96	95	PIN 49 OUT -
ANALOG SHIELD	94	93	ANALOG SHIELD
PIN 50 IN +	92	91	PIN 50 OUT +
PIN 50 IN -	90	89	PIN 50 OUT -
ANALOG SHIELD	88	87	ANALOG SHIELD
PIN 51 IN +	86	85	PIN 51 OUT +
PIN 51 IN -	84	83	PIN 51 OUT -
ANALOG SHIELD	82	81	ANALOG SHIELD
PIN 52 IN +	80	79	PIN 52 OUT +
PIN 52 IN -	78	77	PIN 52 OUT -
ANALOG SHIELD	76	75	ANALOG SHIELD
PIN 53 IN +	74	73	PIN 53 OUT +
PIN 53 IN -	72	71	PIN 53 OUT -
ANALOG SHIELD	70	69	ANALOG SHIELD
PIN 54 IN +	68	67	PIN 54 OUT +
PIN 54 IN -	66	65	PIN 54 OUT -
ANALOG SHIELD	64	63	ANALOG SHIELD
PIN 55 IN +	62	61	PIN 55 OUT +
PIN 55 IN -	60	59	PIN 55 OUT -
ANALOG SHIELD	58	57	ANALOG SHIELD
PIN 56 IN +	56	55	PIN 56 OUT +
PIN 56 IN -	54	53	PIN 56 OUT -
ANALOG SHIELD	52	51	ANALOG SHIELD
PIN 57 IN +	50	49	PIN 57 OUT +
PIN 57 IN -	48	47	PIN 57 OUT -
ANALOG SHIELD	46	45	ANALOG SHIELD
PIN 58 IN +	44	43	PIN 58 OUT +
PIN 58 IN -	42	41	PIN 58 OUT -
ANALOG SHIELD	40	39	ANALOG SHIELD
PIN 59 IN +	38	37	PIN 59 OUT +
PIN 59 IN -	36	35	PIN 59 OUT -
ANALOG SHIELD	34	33	ANALOG SHIELD
PIN 60 IN +	32	31	PIN 60 OUT +
PIN 60 IN -	30	29	PIN 60 OUT -
ANALOG SHIELD	28	27	ANALOG SHIELD
PIN 61 IN +	26	25	PIN 61 OUT +
PIN 61 IN -	24	23	PIN 61 OUT -
ANALOG SHIELD	22	21	ANALOG SHIELD
PIN 62 IN +	20	19	PIN 62 OUT +
PIN 62 IN -	18	17	PIN 62 OUT -
ANALOG SHIELD	16	15	ANALOG SHIELD
PIN 63 IN +	14	13	PIN 63 OUT +
PIN 63 IN -	12	11	PIN 63 OUT -
ANALOG SHIELD	10	9	ANALOG SHIELD
PIN 64 IN +	8	7	PIN 64 OUT +
PIN 64 IN -	6	5	PIN 64 OUT -
ANALOG SHIELD	4	3	ANALOG SHIELD
CHASSIS GND	2	1	CHASSIS GND

Figure 8: J6 Connector

Memory Map

A16 Space

Offset (hex)	This offset is added to the A16 Base Address of the module. The A16 Base Address for the Flex Switch is equal to the VXIbus logical address assigned to the Flex Switch shifted left six times and ORed with hex C000. These registers reside in the VXI Interface circuitry on the Motherboard (85002160).
00	VXIbus ID Register
02	Device Type Register
04	VXIbus Status/Control Register
06	Offset Register
3E	ASCOR Relay Control Register

A24 Space The A24 Base Address of the 3000-46 can be derived from the value stored in the Offset Register (06h). To obtain the A24 base address, take the 8 most significant bits of the Offset register and map them to the 8 most significant bits of the A24 Base Address. All other bits in the A24 Base Address are set to zeroes.

Memory Map (Continued)

A subset of the ASCOR 3000-46 Custom Registers are relay registers.
See connector assignments for pin and channels assignments with associated relays.

3000-46 Relay Registers	
8000h	Relays K1-16, Pin 1 (Ch. 1-8), Pin 2 (Ch. 1-8)
8002h	Relays K17-32, Pin 3 (Ch. 1-8), Pin 4 (Ch. 1-8)
8004h	Relays K33-48, Pin 5 (Ch. 1-8), Pin 6 (Ch. 1-8)
8006h	Relays K49-64, Pin 7 (Ch. 1-8), Pin 8 (Ch. 1-8)
8008h	Relays K65-80, Pin 9 (Ch. 1-8), Pin 10 (Ch. 1-8)
800Ah	Relays K81-96, Pin 11 (Ch. 1-8), Pin 12 (Ch. 1-8)
800Ch	Relays K97-112, Pin 13 (Ch. 1-8), Pin 14 (Ch. 1-8)
800Eh	Relays K113-128, Pin 15 (Ch. 1-8), Pin 16 (Ch. 1-8)
8010h	Relays K129-144, isolation relays, group 1,2
8020h	Relays K1-16, Pin 17 (Ch. 1-8), Pin 18 (Ch. 1-8)
8022h	Relays K17-32, Pin 19 (Ch. 1-8), Pin 20 (Ch. 1-8)
8024h	Relays K33-48, Pin 21 (Ch. 1-8), Pin 22 (Ch. 1-8)
8026h	Relays K49-64, Pin 23 (Ch. 1-8), Pin 24 (Ch. 1-8)
8028h	Relays K65-80, Pin 25 (Ch. 1-8), Pin 26 (Ch. 1-8)
802Ah	Relays K81-96, Pin 27 (Ch. 1-8), Pin 28 (Ch. 1-8)
802Ch	Relays K97-112, Pin 29 (Ch. 1-8), Pin 30 (Ch. 1-8)
802Eh	Relays K113-128, Pin 31 (Ch. 1-8), Pin 32 (Ch. 1-8)
8030h	Relays K129-144, isolation relays, group 3, 4

Register Map Motherboard

Model 3000-46 Motherboard SCH85002160

Register 8000h (mother board)			
Function: Group 1 8X1			
BIT	FUNCTION	COMMENTS	
0	Group 1, Pin 1+	J1-98 ,	Shield: J1-94, K1
1	Group 1, Pin 1-	J1-96 ,	Shield: J1-94, K2
2	Group 1, Pin 2+	J1-92 ,	Shield: J1-88, K3
3	Group 1, Pin 2-	J1-90 ,	Shield: J1-88, K4
4	Group 1, Pin 3+	J1-86 ,	Shield: J1-82, K5
5	Group 1, Pin 3-	J1-84 ,	Shield: J1-82, K6
6	Group 1, Pin 4+	J1-80 ,	Shield: J1-76, K7
7	Group 1, Pin 4-	J1-78 ,	Shield: J1-76, K8
8	Group 1, Pin 5+	J1-74 ,	Shield: J1-70, K9
9	Group 1, Pin 5-	J1-72 ,	Shield: J1-70, K10
10	Group 1, Pin 6+	J1-68 ,	Shield: J1-64, K11
11	Group 1, Pin 6 -	J1-66 ,	Shield: J1-64, K12
12	Group 1, Pin 7+	J1-62 ,	Shield: J1-58, K13
13	Group 1, Pin 7-	J1-60 ,	Shield: J1-58, K14
14	Group 1, Pin 8+	J1-56 ,	Shield: J1-52, K15
15	Group 1, Pin 8-	J1-54 ,	Shield: J1-52, K16

Register 8002h (mother board)			
Function: Group 2 8X1			
BIT	FUNCTION	COMMENTS	
0	Group 2, Pin 9+	J1-50 ,	Shield: J1-46, K17
1	Group 2, Pin 9-	J1-48 ,	Shield: J1-46, K18
2	Group 2, Pin 10+	J1-44 ,	Shield: J1-40, K19
3	Group 2, Pin 10-	J1-42 ,	Shield: J1-40, K20
4	Group 2, Pin 11+	J1-38 ,	Shield: J1-34, K21
5	Group 2, Pin 11-	J1-36 ,	Shield: J1-34, K22
6	Group 2, Pin 12+	J1-32 ,	Shield: J1-28, K23
7	Group 2, Pin 12-	J1-30 ,	Shield: J1-28, K24
8	Group 2, Pin 13+	J1-26 ,	Shield: J1-22, K25
9	Group 2, Pin 13-	J1-24 ,	Shield: J1-22, K26
10	Group 2, Pin 14+	J1-20 ,	Shield: J1-16, K27
11	Group 2, Pin 14-	J1-18 ,	Shield: J1-16, K28
12	Group 2, Pin 15+	J1-14 ,	Shield: J1-10, K29
13	Group 2, Pin 15-	J1-12 ,	Shield: J1-10, K30
14	Group 2, Pin 16+	J1-8 ,	Shield: J1-4, K31
15	Group 2, Pin 16-	J1-6 ,	Shield: J1-4, K32

Register Map Motherboard (Continued)

Model 3000-46 Motherboard SCH85002160

Register 8004h (mother board)			
Function: ISO RELAYS PINS 1-16			
BIT	**FUNCTION**	**COMMENTS**	
0	ISO, Pin 1	J1-98, 96,	Shield: J1-94, K33
1	ISO, Pin 2	J1-92, 90,	Shield: J1-88, K34
2	ISO, Pin 3	J1-86, 84,	Shield: J1-82, K35
3	ISO, Pin 4	J1-80, 78,	Shield: J1-86, K36
4	ISO, Pin 5	J1-74, 72,	Shield: J1-70, K37
5	ISO, Pin 6	J1-68, 66,	Shield: J1-64, K38
6	ISO, Pin 7	J1-62, 60,	Shield: J1-58, K39
7	ISO, Pin 8	J1-56, 54,	Shield: J1-52, K40
8	ISO, Pin 9	J1-50, 48,	Shield: J1-46, K41
9	ISO, Pin 10	J1-44, 42,	Shield: J1-40, K42
10	ISO, Pin 11	J1-38, 36,	Shield: J1-34, K43
11	ISO, Pin 12	J1-32, 30,	Shield: J1-28, K44
12	ISO, Pin 13	J1-26, 24,	Shield: J1-22, K45
13	ISO, Pin 14	J1-20, 18,	Shield: J1-16, K46
14	ISO, Pin 15	J1-14, 12,	Shield: J1-10, K47
15	ISO, Pin 16	J1-8, 6,	Shield: J1-4, K48

Register 8006h (mother board)			
Function: Group 3 8X1			
BIT	**FUNCTION**	**COMMENTS**	
0	Group 3, Pin 17+	J3-98 ,	Shield: J3-94, K49
1	Group 3, Pin 17-	J3-96 ,	Shield: J3-94, K50
2	Group 3, Pin 18+	J3-92 ,	Shield: J3-88, K51
3	Group 3, Pin 18-	J3-90 ,	Shield: J3-88, K52
4	Group 3, Pin 19+	J3-86 ,	Shield: J3-82, K53
5	Group 3, Pin 19-	J3-84 ,	Shield: J3-82, K54
6	Group 3, Pin 20+	J3-80 ,	Shield: J3-76, K55
7	Group 3, Pin 20-	J3-78 ,	Shield: J3-76, K56
8	Group 3, Pin 21+	J3-74 ,	Shield: J3-70, K57
9	Group 3, Pin 21-	J3-72 ,	Shield: J3-70, K58
10	Group 3, Pin 22+	J3-68 ,	Shield: J3-64, K59
11	Group 3, Pin 22-	J3-66 ,	Shield: J3-64, K60
12	Group 3, Pin 23+	J3-62 ,	Shield: J3-58, K61
13	Group 3, Pin 23-	J3-60 ,	Shield: J3-58, K62
14	Group 3, Pin 24+	J3-56 ,	Shield: J3-52, K63
15	Group 3, Pin 24-	J3-54 ,	Shield: J3-52, K64

Register Map Motherboard (Continued)

Model 3000-46 Motherboard SCH85002160

Register 8008 (mother board)			
Function: Group 4 8X1			
BIT	FUNCTION	COMMENTS	
0	Group 4, Pin 25+	J3-50,	Shield: J3-46, K65
1	Group 4, Pin 25-	J3-48,	Shield: J3-46, K66
2	Group 4, Pin 26+	J3-44,	Shield: J3-40, K67
3	Group 4, Pin 26-	J3-42,	Shield: J3-40, K68
4	Group 4, Pin 27+	J3-38,	Shield: J3-34, K69
5	Group 4, Pin 27-	J3-36,	Shield: J3-34, K70
6	Group 4, Pin 28+	J3-32,	Shield: J3-28, K71
7	Group 4, Pin 28-	J3-30,	Shield: J3-28, K72
8	Group 4, Pin 29+	J3-26,	Shield: J3-22, K73
9	Group 4, Pin 29-	J3-24,	Shield: J3-22, K74
10	Group 4, Pin 30+	J3-20,	Shield: J3-16, K75
11	Group 4, Pin 30-	J3-18,	Shield: J3-16, K76
12	Group 4, Pin 31+	J3-14,	Shield: J3-10, K77
13	Group 4, Pin 31-	J3-12,	Shield: J3-10, K78
14	Group 4, Pin 32+	J3-8,	Shield: J3-4, K79
15	Group 4, Pin 32-	J3-6,	Shield: J3-4, K80

Register 800Ah (mother board)			
Function: ISO RELAYS PINS 17-32			
BIT	FUNCTION	COMMENTS	
0	ISO, Pin 17	J3-98, 96,	Shield: J3-94, K81
1	ISO, Pin 18	J3-92, 90,	Shield: J3-88, K82
2	ISO, Pin 19	J3-86, 84,	Shield: J3-82, K83
3	ISO, Pin 20	J3-80, 78,	Shield: J3-86, K84
4	ISO, Pin 21	J3-74, 72 ,	Shield: J3-70, K85
5	ISO, Pin 22	J3-68, 66,	Shield: J3-64, K86
6	ISO, Pin 23	J3-62, 60,	Shield: J3-58, K87
7	ISO, Pin 24	J3-56, 54,	Shield: J3-52, K88
8	ISO, Pin 25	J3-50, 48,	Shield: J3-46, K89
9	ISO, Pin 26	J3-44, 42,	Shield: J3-40, K90
10	ISO, Pin 27	J3-38, 36,	Shield: J3-34, K91
11	ISO, Pin 28	J3-32, 30,	Shield: J3-28, K92
12	ISO, Pin 29	J3-26, 24,	Shield: J3-22, K93
13	ISO, Pin 30	J3-20, 18,	Shield: J3-16, K94
14	ISO, Pin 31	J3-14, 12,	Shield: J3-10, K95
15	ISO, Pin 32	J3-8, 6,	Shield: J3-4, K96

Register Map Motherboard (Continued)

Model 3000-46 Motherboard SCH85002160

Register 800Ch (mother board)			
Function: OUTPUT CONTROL RELAYS			
BIT	FUNCTION	COMMENTS	
0	GP1, 1X8 +	J2-24 ,	Shield: J2-26, K97
1	GP1, 1X8 -	J2-22 ,	Shield: J2-20, K98
2	GP1, 1X16 +	J2-18 ,	Shield: J2-14, K99
3	GP1, 1X16 -	J2-16 ,	Shield: J2-14, K100
4	GP2, 1X16 +	J2-18 ,	Shield: J2-14, K101
5	GP2, 1X16 -	J2-16 ,	Shield: J2-14, K102
6	GP2, 1X8 +	J2-23 ,	Shield: J2-25, K103
7	GP2, 1X8 -	J2-21 ,	Shield: J2-19, K104
8	GP3, 1X8 +	J2-12 ,	Shield: J2-8, K105
9	GP3, 1X8 -	J2-10 ,	Shield: J2-8, K106
10	GP3, 1X16 +	J2-17 ,	Shield: J2-13, K107
11	GP3, 1X16 -	J2-15 ,	Shield: J2-13, K108
12	GP4, 1X16 +	J2-17 ,	Shield: J2-13, K109
13	GP4, 1X16 -	J2-15 ,	Shield: J2-13, K110
14	GP4, 1X8 +	J2-11 ,	Shield: J2-7, K111
15	GP4, 1X8 -	J2-9 ,	Shield: J2-7, K112

Register 800Eh (mother board)			
Function: OUTPUT CONTROL RELAYS			
BIT	FUNCTION	COMMENTS	
0	GP1, 1X32 +	J2-6 ,	Shield: J2-2, K113
1	GP1, 1X32 -	J2-4 ,	Shield: J2-2, K114
2	GP2, 1X32 +	J2-6 ,	Shield: J2-2, K115
3	GP2, 1X32 -	J2-4 ,	Shield: J2-2, K116
4	GP3, 1X32 +	J2-6 ,	Shield: J2-2, K117
5	GP3, 1X32 -	J2-4 ,	Shield: J2-2, K118
6	GP4, 1X32 +	J2-6 ,	Shield: J2-2, K119
7	GP4, 1X32 -	J2-4 ,	Shield: J2-2, K120
8	EXT REF 1 +	J2-5 to J2-6 ,	Shield: J2-1, K121
9	EXT REF 2 +	J2-3 to J2-6 ,	Shield: J2-1, K122
10	ANALOG GND REF +	-	K123
11	CHASSIS GND REF +	-	K124
12	ISO, 1X32/64 +	J2-6 ,	Shield: J2-2, K125
13	ISO, 1X32/64 -	J2-4 ,	Shield: J2-2, K126
14	ISO, 1X64 +	J2-6 ,	Shield: J2-2, K127
15	ISO, 1X64 -	J2-4 ,	Shield: J2-2, K128

Note: K125/126 are use to isolate pins J2-6/4 to allow signal routing from the mother board or from the daughter board. J2-6 and J2-4 can be used as a 1x32 or as a 1x64. K127/128 are use to switch in the 1x32 output from the daughter board for a 1x64 capability.

Register Map Daughterboard

Model 3000-46 Daughterboard SCH85002170

Register 8020h (daughter board)			
Function: Group 1 8X1			
BIT	**FUNCTION**	**COMMENTS**	
0	Group 5, Pin 33+	J4-98 ,	Shield: J4-94, K1
1	Group 5, Pin 33-	J4-96 ,	Shield: J4-94, K2
2	Group 5, Pin 34+	J4-92 ,	Shield: J4-88, K3
3	Group 5, Pin 34-	J4-90 ,	Shield: J4-88, K4
4	Group 5, Pin 35+	J4-86 ,	Shield: J4-82, K5
5	Group 5, Pin 35-	J4-84 ,	Shield: J4-82, K6
6	Group 5, Pin 36+	J4-80 ,	Shield: J4-76, K7
7	Group 5, Pin 36-	J4-78 ,	Shield: J4-76, K8
8	Group 5, Pin 37+	J4-74 ,	Shield: J4-70, K9
9	Group 5, Pin 37-	J4-72 ,	Shield: J4-70, K10
10	Group 5, Pin 38+	J4-68 ,	Shield: J4-64, K11
11	Group 5, Pin 38-	J4-66 ,	Shield: J4-64, K12
12	Group 5, Pin 39+	J4-62 ,	Shield: J4-58, K13
13	Group 5, Pin 39-	J4-60 ,	Shield: J4-58, K14
14	Group 5, Pin 40+	J4-56 ,	Shield: J4-52, K15
15	Group 5, Pin 40-	J4-54 ,	Shield: J4-52, K16

Register 8022h (daughter board)			
Function: Group 6 8X1			
BIT	**FUNCTION**	**COMMENTS**	
0	Group 6, Pin 41+	J4-50 ,	Shield: J4-46, K17
1	Group 6, Pin 41-	J4-48 ,	Shield: J4-46, K18
2	Group 6, Pin 42+	J4-44 ,	Shield: J4-40, K19
3	Group 6, Pin 42-	J4-42 ,	Shield: J4-40, K20
4	Group 6, Pin 43+	J4-38 ,	Shield: J4-34, K21
5	Group 6, Pin 43-	J4-36 ,	Shield: J4-34, K22
6	Group 6, Pin 44+	J4-32 ,	Shield: J4-28, K23
7	Group 6, Pin 44-	J4-30 ,	Shield: J4-28, K24
8	Group 6, Pin 45+	J4-26 ,	Shield: J4-22, K25
9	Group 6, Pin 45-	J4-24 ,	Shield: J4-22, K26
10	Group 6, Pin 46+	J4-20 ,	Shield: J4-16, K27
11	Group 6, Pin 46-	J4-18 ,	Shield: J4-16, K28
12	Group 6, Pin 47+	J4-14 ,	Shield: J4-10, K29
13	Group 6, Pin 47-	J4-12 ,	Shield: J4-10, K30
14	Group 6, Pin 48+	J4-8 ,	Shield: J4-4, K31
15	Group 6, Pin 48-	J4-6 ,	Shield: J4-4, K32

Register Map Daughterboard (Continued)

Model 3000-46 Daughterboard SCH85002170

Register 8024h (daughter board)			
Function: ISO RELAYS PINS 33-48			
BIT	**FUNCTION**	**COMMENTS**	
0	ISO, Pin 33	J4-98, 96 ,	Shield: J4-94, K33
1	ISO, Pin 34	J4-92, 90 ,	Shield: J4-88, K34
2	ISO, Pin 35	J4-86, 84 ,	Shield: J4-82, K35
3	ISO, Pin 36	J4-80, 78 ,	Shield: J4-86, K36
4	ISO, Pin 37	J4-74, 72 ,	Shield: J4-70, K37
5	ISO, Pin 38	J4-68, 66 ,	Shield: J4-64, K38
6	ISO, Pin 39	J4-62, 60 ,	Shield: J4-58, K39
7	ISO, Pin 40	J4-56, 54 ,	Shield: J4-52, K40
8	ISO, Pin 41	J4-50, 48 ,	Shield: J4-46, K41
9	ISO, Pin 42	J4-44, 42 ,	Shield: J4-40, K42
10	ISO, Pin 43	J4-38, 36 ,	Shield: J4-34, K43
11	ISO, Pin 44	J4-32, 30 ,	Shield: J4-28, K44
12	ISO, Pin 45	J4-26, 24 ,	Shield: J4-22, K45
13	ISO, Pin 46	J4-20, 18 ,	Shield: J4-16, K46
14	ISO, Pin 47	J4-14, 12 ,	Shield: J4-10, K47
15	ISO, Pin 48	J4-8, 6 ,	Shield: J4-4, K48

Register 8026h (daughter board)			
Function: Group 7 8X1			
BIT	**FUNCTION**	**COMMENTS**	
0	Group 7, Pin 49+	J6-98 ,	Shield: J6-94, K49
1	Group 7, Pin 49-	J6-96 ,	Shield: J6-94, K50
2	Group 7, Pin 50+	J6-92 ,	Shield: J6-88, K51
3	Group 7, Pin 50-	J6-90 ,	Shield: J6-88, K52
4	Group 7, Pin 51+	J6-86 ,	Shield: J6-82, K53
5	Group 7, Pin 51-	J6-84 ,	Shield: J6-82, K54
6	Group 7, Pin 52+	J6-80 ,	Shield: J6-76, K55
7	Group 7, Pin 52-	J6-78 ,	Shield: J6-76, K56
8	Group 7, Pin 53+	J6-74 ,	Shield: J6-70, K57
9	Group 7, Pin 53-	J6-72 ,	Shield: J6-70, K58
10	Group 7, Pin 54+	J6-68 ,	Shield: J6-64, K59
11	Group 7, Pin 54-	J6-66 ,	Shield: J6-64, K60
12	Group 7, Pin 55+	J6-62 ,	Shield: J6-58, K61
13	Group 7, Pin 55-	J6-60 ,	Shield: J6-58, K62
14	Group 7, Pin 56+	J6-56 ,	Shield: J6-52, K63
15	Group 7, Pin 56-	J6-54 ,	Shield: J6-52, K64

Register Map Daughterboard (Continued)

Model 3000-46 Daughterboard SCH85002170

Register 8028 (daughter board)			
Function: Group 8 8X1			
BIT	**FUNCTION**	**COMMENTS**	
0	Group 8, Pin 57+	J6-50 ,	Shield: J6-46, K65
1	Group 8, Pin 57-	J6-48 ,	Shield: J6-46, K66
2	Group 8, Pin 58+	J6-44 ,	Shield: J6-40, K67
3	Group 8, Pin 58-	J6-42 ,	Shield: J6-40, K68
4	Group 8, Pin 59+	J6-38 ,	Shield: J6-34, K69
5	Group 8, Pin 59-	J6-36 ,	Shield: J6-34, K70
6	Group 8, Pin 60+	J6-32 ,	Shield: J6-28, K71
7	Group 8, Pin 60-	J6-30 ,	Shield: J6-28, K72
8	Group 8, Pin 61+	J6-26 ,	Shield: J6-22, K73
9	Group 8, Pin 61-	J6-24 ,	Shield: J6-22, K74
10	Group 8, Pin 62+	J6-20 ,	Shield: J6-16, K75
11	Group 8, Pin 62-	J6-18 ,	Shield: J6-16, K76
12	Group 8, Pin 63+	J6-14 ,	Shield: J6-10, K77
13	Group 8, Pin 63-	J6-12 ,	Shield: J6-10, K78
14	Group 8, Pin 64+	J6-8 ,	Shield: J6-4, K79
15	Group 8, Pin 64-	J6-6 ,	Shield: J6-4, K80

Register 802Ah (daughter board)			
Function: ISO RELAYS PINS 49-64			
BIT	**FUNCTION**	**COMMENTS**	
0	ISO, Pin 49	J6-98, 96 ,	Shield: J6-94, K81
1	ISO, Pin 50	J6-92, 90 ,	Shield: J6-88, K82
2	ISO, Pin 51	J6-86, 84 ,	Shield: J6-82, K83
3	ISO, Pin 52	J6-80, 78 ,	Shield: J6-86, K84
4	ISO, Pin 53	J6-74, 72 ,	Shield: J6-70, K85
5	ISO, Pin 54	J6-68, 66 ,	Shield: J6-64, K86
6	ISO, Pin 55	J6-62, 60 ,	Shield: J6-58, K87
7	ISO, Pin 56	J6-56, 54 ,	Shield: J6-52, K88
8	ISO, Pin 57	J6-50, 48 ,	Shield: J6-46, K89
9	ISO, Pin 58	J6-44, 42 ,	Shield: J6-40, K90
10	ISO, Pin 59	J6-38, 36 ,	Shield: J6-34, K91
11	ISO, Pin 60	J6-32, 30 ,	Shield: J6-28, K92
12	ISO, Pin 61	J6-26, 24 ,	Shield: J6-22, K93
13	ISO, Pin 62	J6-20, 18 ,	Shield: J6-16, K94
14	ISO, Pin 63	J6-14, 12 ,	Shield: J6-10, K95
15	ISO, Pin 64	J6-8, 6 ,	Shield: J6-4, K96

Register Map Daughterboard (Continued)

Model 3000-46 Daughterboard SCH85002170

Register 802Ch (daughter board)			
Function: OUTPUT CONTROL RELAYS			
BIT	FUNCTION	COMMENTS	
0	GP5, 1X8 +	J5-24 ,	Shield: J5-26, K97
1	GP5, 1X8 -	J5-22 ,	Shield: J5-20, K98
2	GP5, 1X16 +	J5-18 ,	Shield: J5-14, K99
3	GP5, 1X16 -	J5-16 ,	Shield: J5-14, K100
4	GP6, 1X16 +	J5-18 ,	Shield: J5-14, K101
5	GP6, 1X16 -	J5-16 ,	Shield: J5-14, K102
6	GP6, 1X8 +	J5-23 ,	Shield: J5-25, K103
7	GP6, 1X8 -	J5-21 ,	Shield: J5-19, K104
8	GP7, 1X8 +	J5-12 ,	Shield: J5-8, K105
9	GP7, 1X8 -	J5-10 ,	Shield: J5-8, K106
10	GP7, 1X16 +	J5-17 ,	Shield: J5-13, K107
11	GP7, 1X16 -	J5-15 ,	Shield: J5-13, K108
12	GP8, 1X16 +	J5-17 ,	Shield: J5-13, K109
13	GP8, 1X16 -	J5-15 ,	Shield: J5-13, K110
14	GP8, 1X8 +	J5-11 ,	Shield: J5-7, K111
15	GP8, 1X8 -	J5-9 ,	Shield: J5-7, K112

Register 802Eh (daughter board)			
Function: OUTPUT CONTROL RELAYS			
BIT	FUNCTION	COMMENTS	
0	GP5, 1X32 +	J5-6 ,	Shield: J5-2, K113
1	GP5, 1X32 -	J5-4 ,	Shield: J5-2, K114
2	GP6, 1X32 +	J5-6 ,	Shield: J5-2, K115
3	GP6, 1X32 -	J5-4 ,	Shield: J5-2, K116
4	GP7, 1X32 +	J5-6 ,	Shield: J5-2, K117
5	GP7, 1X32 -	J5-4 ,	Shield: J5-2, K118
6	GP8, 1X32 +	J5-6 ,	Shield: J5-2, K119
7	GP8, 1X32 -	J5-4 ,	Shield: J5-2, K120
8	EXT REF 1 +	J5-5 to J5-6 ,	Shield: J5-1, K121
9	EXT REF 2 +	J5-3 to J5-6 ,	Shield: J5-1, K122
10	ANALOG GND REF +	-	K123
11	CHASSIS GND REF +	-	K124
12	ISO, 1X32/64 +	J5-6 ,	Shield: J5-2, K125
13	ISO, 1X32/64 -	J5-4 ,	Shield: J5-2, K126
14	ISO, 1X64 +	J5-6 ,	Shield: J5-2, K127
15	ISO, 1X64 -	J5-4 ,	Shield: J5-2, K128

Note: K125/126 are use to isolate pins J5-6/4 to allow signal routing from the mother board or from the daughter board. J5-6 and J5-4 can be used as a 1x32 or as a 1x64. K127/128 are use to switch in the 1x32 output from the daughter board for a 1x64 capability.

ASCOR
INCORPORATED
A Giga-tronics Company

MODEL 3000-46

Flex Switch
VXI Module
Technical Manual

Table of Contents

Installation and Maintenance

Section 2

Installation and Maintenance 1
Inspection 2
Installation and Removel 2
Logical Address Switch 3
Installing the Module into VXI Chassis 4
Removal of the Module from VXI Chassis 4

Installation and Maintenance

Introduction

The Module 3000- 46 is shipped in operational condition, and is ready for use as received. This section contains inspection, removal and installation information to aid in setting up the module for immediate use. Installation kit 89800360 available on request (Optional).

All ASCOR VXI modules must pass a Factory Acceptance Test Procedure inspection before leaving the plant and are shipped in operational condition. Upon receipt, a receiving inspection test should be performed immediately after unpacking to ensure that the module is still operational.

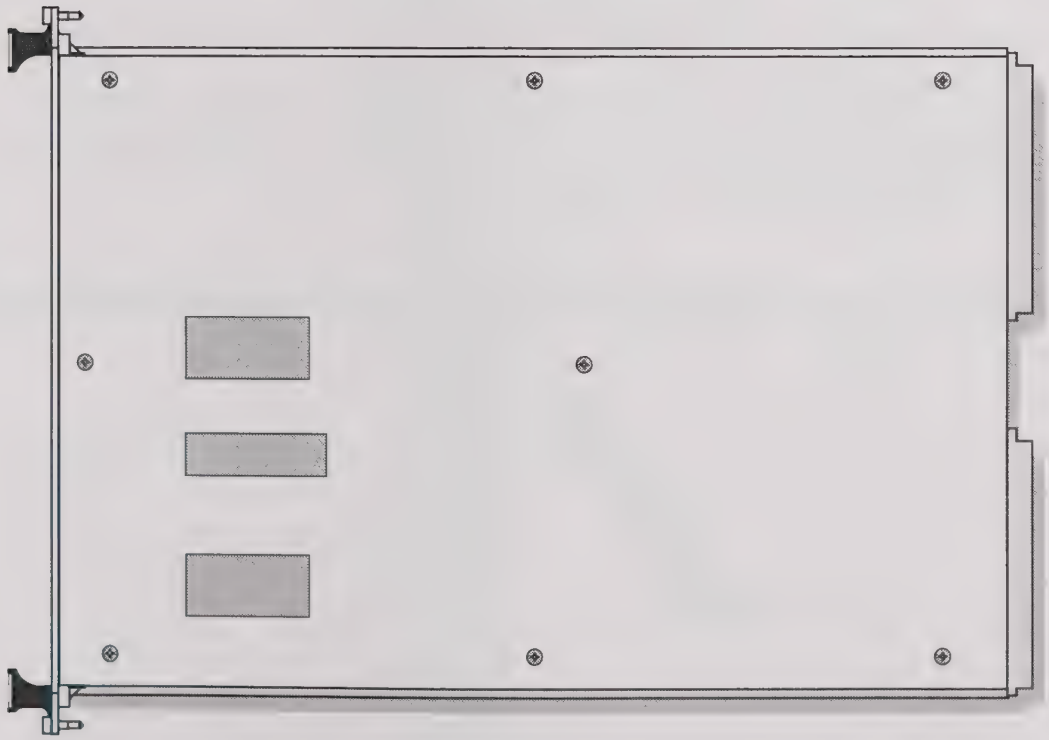


Figure 9: Model 3000-46 Flex Switch

Inspection

After initial inspection of the module 3000- 46, each connector should be inspected for loose or broken contacts. Check for any visible damage to the module. If damage of any nature is found, notify the carrier and your ASCOR representative immediately.

Installation and Removal

WARNING

*The VXI Chassis' power must be **OFF** before installing or removing modules from the mainframe. Damage may occur if the modules are removed with the power still **ON.***

Logical Address Switch

The Logical Address Switch is dual circular switches, D1 and D2 which are located at the rear of the module. The address can be set to any value between 1 and 255 (decimal) or 1 and FF (hexadecimal), (address 0 is reserved for the resource manager). However, the Module 3000- 46 fully supports Dynamic Configuration as defined in ***Section F of the VXI specification,*** address 255 (FF) should be selected only if the Resource Manager also supports Dynamic Configuration.

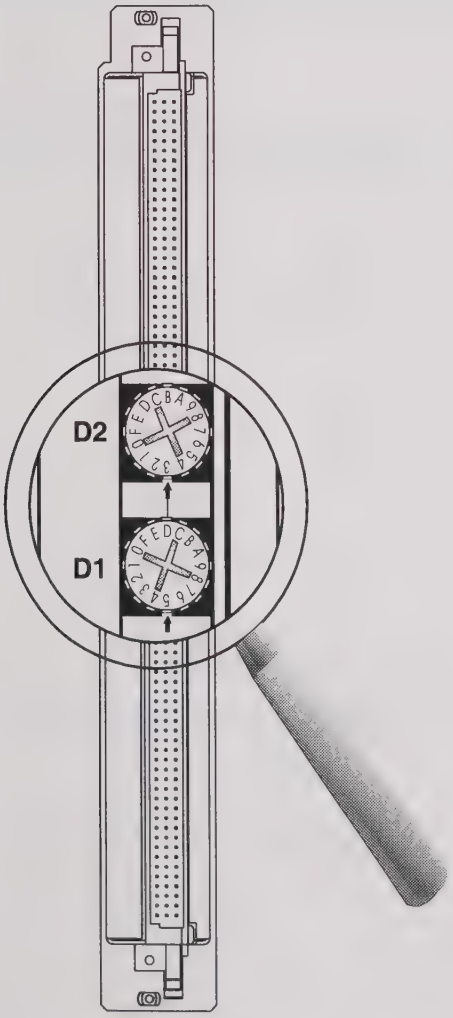


Figure 10: Model 3000-46 Flex Switch (Rear View)

Installing the Module into VXI Chassis

The Module 3000- 46 is a standard size C, VXIbus Functional module. It is fitted into the VXI chassis by turning it to its vertical position with its Board to the left, and sliding it into any slot except slot 0.

Ejectors are located at the top and bottom of the panel. When removing the module, these operate as levers to ease the P1 and P2 connectors out of the backplane. When installing, the module should be gently pressed in to engage the connectors into the backplane, and when fully seated, the ejectors will be set at right angles to the surface of the front panel. Two captive screws, outboard of the ejectors, secure the module to the VXI chassis.

Removal of the Module from VXI Chassis

Two Captive screws, outboard of the ejectors, are unscrewed to release the module from the VXI chassis. Ejectors are located at the top and bottom of the front panel. These are forced gently outwards (top-up; bottom-down) to operate levers which ease P1 and P2 connectors out of the backplane. The module can then be pulled to slide it out of the slot.

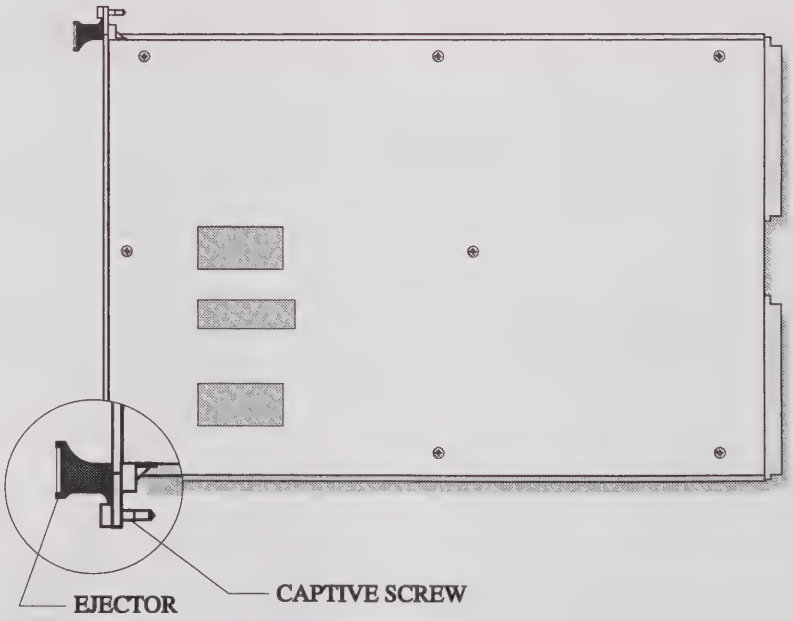


Figure 11: Model 3000-46 Flex Switch

ASCOR
INCORPORATED
A Giga-tronics Company

MODEL 3000-46

Flex Switch VXI Module Programming Guide

Table of Contents

Programming Guide

Section 3

Introduction 1
1. ASCOR 3000-46 Module Overview 1
2. VXI Device Register Description 3
3. ASCOR Register Description 12
4. Programming with Registers 14
5. Miscellaneous Questions and Answers 23

Introduction

This section provides the necessary information for programming the Model 3000-46 Flex Switch VXI Module.

1. ASCOR 3000-46 Module Overview

1.1 VXI Register Based Modules

The ASCOR 3000-46 Flex Switch VXI Module is a register based device and supports VXIbus register maps. All controls to the 3000-46 is done through registers. All registers can be accessed with the use of slot 0 computers, host computers with VXI-MXI, or host computers with GPIB and GPIB-VXI slot 0 controllers. The 3000-46 is not a message based device and does not support VXIbus communication protocols.

1.2 ASCOR VXI Module Type

The 3000-46 has operational registers in the A16 and A24 address spaces. The registers located in the A16 address space are VXI Device Registers. They are accessed as a 16-bit word. The registers located in the A24 address space are ASCOR Module Custom registers, and they can be accessed as a 16-bit word. Additionally, since the 3000-46 is equipped with VXIMAX™ 16/32, these Custom registers can also be accessed as a 32-bit word.

1.3 VXI Device Registers

VXI Device Registers are located in the A16 address space, which can be accessed by A16 address mode. VXI Device Registers are separated into Configuration, Device Class Dependent, and Device Dependent registers. The 3000-46 provides all 4 Configuration Registers and one Device Dependent register. The rest of the A16 register space is not populated. Programming examples are shown in Sections 4.1 - 4.3 using several popular interface libraries.

1.4 ASCOR Module Custom Registers

The 3000-46 Custom registers are located in the A24 address space and they can only be accessed with A24 address mode. The method of accessing these Registers in the A24 address space is different from accessing the VXI Device Registers in the A16 address space. Therefore, care must be taken whenever accessing registers that are located in different address spaces. Programming examples are shown in Section 4.4 using several popular interface libraries.

1. ASCOR 3000-46 Module Overview (Continued)

1.5 Static and Dynamic Configurations

The 3000-46 supports both Static Configuration and Dynamic Configuration of Logical Address. In Static Configuration mode the Logical Address of the module is set and cannot be changed by the resource manager. In Dynamic Configuration mode the Logical Address is determined by the resource manager based on other devices in the system. Procedures for changing the Logical Addresses for the 3000-46 are discussed in ***Section 5.3: How to change the 3000-46 Module's Logical Address (See Page 25)***.

2. VXI Device Register Description

The ASCOR 3000-46 Flex Switch has VXI Device Registers located in the A16 address space. The VXI Specification defines 32 VXI Device Registers and they are all 16 bits wide. The first 4 registers are VXI Configuration Registers. The next 12 registers are VXI Device Class Dependent Registers. The last 16 registers are VXI Device Dependent Registers.

The 3000-46 supports 5 of the 32 VXI Device Registers, four in VXI Configuration Registers and one in VXI Device Dependent Register. All other registers are not supported.

VXI Device Registers for ASCOR 3000-46	
VXI Device Dependent Register	
3Eh	ASCOR Control Register
3Ch	Register Not Used
3Ah	Register Not Used
38h	Register Not Used
36h	Register Not Used
34h	Register Not Used
32h	Register Not Used
30h	Register Not Used
2Eh	Register Not Used
2Ch	Register Not Used
2Ah	Register Not Used
28h	Register Not Used
26h	Register Not Used
24h	Register Not Used
22h	Register Not Used
20h	Register Not Used
VXI Device Class Dependent Registers	
1Eh	Register Not Used
1Ch	Register Not Used
1Ah	Register Not Used
18h	Register Not Used
16h	Register Not Used
1Ah	Register Not Used
18h	Register Not Used
16h	Register Not Used
14h	Register Not Used
12h	Register Not Used
10h	Register Not Used
0Eh	Register Not Used
0Ch	Register Not Used
0Ah	Register Not Used
08h	Register Not Used
VXI Configuration Registers	
06h	Offset Register
04h	Status / Control Register
02h	Device Type Register
00h	ID / Logical Address Register

2. VXI Device Register Description (Continued)

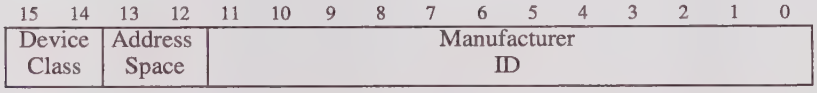
2.1 VXI Configuration Registers

The first four registers in the A16 address space are Configuration Registers. Each register is 16-bits wide. They are explained below.

Offset **Description**

00h **ID Register (read) / Logical Address Register (write)**

A read of this 16-bit register provides information about the 3000-46 Module's configuration.



(Bits 15-14) Device Class: This field indicates the classification of the VXIbus device.
00b = Memory
01b = Extended
10b = Message Based
xxx = Register Based (ASCOR VXI Module)

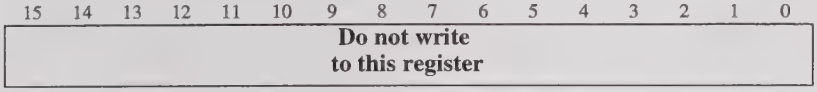
(Bits 13-12) Address Space: This field indicates the addressing mode(s) of the device's operational registers.
00b = A16/A24
01b = A16/A32
10b = RESERVED
11b = A16 Only

(Bits 11-0) Manufacturer ID: This field uniquely identifies the manufacturer of the device.
FB5h = ASCOR

For the 3000 - 46 Module, the register should read back a value of CFB5h.

2. VXI Device Register Description (Continued)

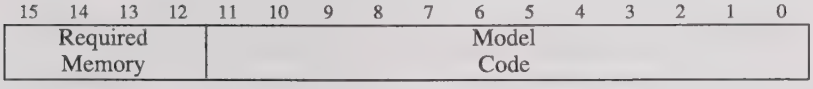
A write to this 16-bit register is provided for Dynamic Configuration protocol. This register should only be written to by a resource manager. Do not write to this register.



Offset **Description**

02h **Device Type (read/write)**

A read of this 16-bit register provides information about the 3000-46 Module's Device Type. This register indicates how much VMEbus memory is required by the VXI module, as well as the manufacture's unique model code.

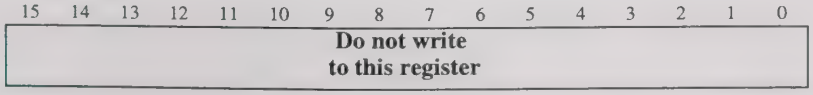


(Bits 15-12) Required Memory: This field contains the value used for determining the A24 or A32 memory space resident on the device
7h = 64K bytes in A24 Address Space
Fh = 64K bytes in A32 Address Space

(Bits 11-0) Model Code: This field contains the manufacturer's unique module identifier.
F2Eh = The ASCOR Model Code for the 3000-46. This number is different from the ASCOR Model number.

For the 3000 - 46 Module, the register should read back a value of 7F2Eh.

A write to this 16-bit register is provided for VXIbus definition. Do not write to this register.



2. VXI Device Register Description (Continued)

Offset **Description**

04h **Status Register (read) / Control Register (write)**

A read of this 16-bit register provides information about the 3000-46 status.

15	14	13 12 11 10 9 8 7 6 5 4	3	2	1 0
A24/A32	MOD ID	Device Dependent (Not used)	Ready	Passed	Dev. Dep.

(Bit 15) A24/A32 Active: This bit indicates the accessibility of A24 or A32 registers.

1b = A24 or A32 Address Space Active

0b = A24 or A32 Address Space not Active (for A16 only devices)

(Bit 14) MODID: This bit indicates if the device is selected via the P2 MODID line.

1b = Device is not selected via the P2 MODID line. Used by the resource manager during Dynamic Configuration.

(Bits 13-4) Device Dependent (Not used)

(Bit 3) Ready: This bit indicates if the device is ready to accept operational commands.

1b = Device is ready after power-on initialization sequence

(Bit 2) Passed: This bit indicates if the power-on self test has successfully completed.

1b = Device does not support power-on self test (always pass)

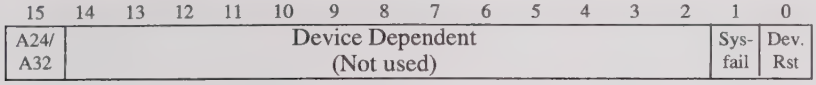
(Bits 1-0) Device Dependent

00b = State of the corresponding bits of the Control register

For the 3000-46 Module, the register should read back a value of FFFCh.

2. VXI Device Register Description (Continued)

A write to this 16-bit register causes specific actions to be executed.



(Bit 15) A24/A32 Enable: This bit enables or disables A24 / A32 VMEbus registers.

1b = Enables A24 or A32 VMEbus registers. This bit must always remain a one after being set to one by the resource manager.

0b = Disables A24 or A32 VMEbus registers. This bit must always remain a zero after being cleared to zero by the resource manager. (for A16 only devices)

(Bits 14-2) Device Dependent (Not used)

(Bit 1) Sysfail Inhibit: This bit controls the device's ability to drive the SYSFAIL line.

0b = Always set to zero (Sysfail not inhibited)

(Bit 0) Device Reset: This bit controls the state of the device.

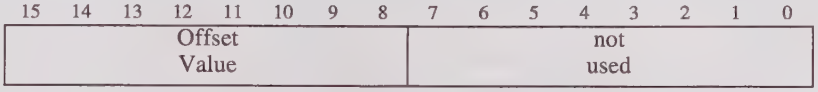
1b = Reset the device to power-on state.

0b = Normal operational mode

2. VXI Device Register Description (Continued)

06h **Offset Register (read/write)**

A read of the 16-bit register provides information for calculating the base address of the 3000-46 A24 operational registers.

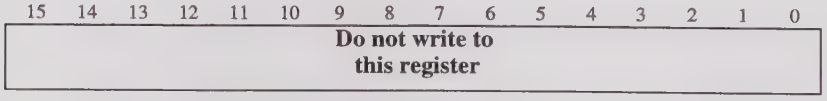


(Bits 15-8) Offset Value: This field is used for calculating the A24 Base Address.

(Bits 7-0) Don't Care bits (Not used)

To obtain the A24 base address for the 3000-46, take the 8 most significant bits of the Offset register and map them to the 8 most significant bits of the A24 Base Address. All other bits in the A24 Base Address are set to zeroes. For more detail refer to ***Section 5.2: (Page Number Page 23 & 24) Q: How do I calculate the 3000-46 Module's A24 Base Address?.***

A write to this 16-bit register is provided for Dynamic Configuration protocol. This register should only be written to by a resource manager. Do not write to this register.



2. VXI Device Register Description (Continued)

2.2 VXI Device Class Dependent Registers

The ASCOR 3000-46 Flex Switch VXI Module does not use nor provide any of the 12 Device Class Dependent Registers.

Offset	Description
08h	Not Used
0Ah	Not Used
0Ch	Not Used
0Eh	Not Used
10h	Not Used
12h	Not Used
14h	Not Used
16h	Not Used
18h	Not Used
1Ah	Not Used
1Ch	Not Used
1Eh	Not Used

2.3 VXI Device Dependent Registers for the 3000-46

The VXI Specification defines 16 Device Dependent Registers in the A16 address space following the Device Class Dependent Register space. Each register is 16 bits wide. The first 15 registers are not used nor provided by the ASCOR 3000-46 Flex Switch, only the last register is used.

Offset	Description
20h	Not Used
22h	Not Used
24h	Not Used
26h	Not Used
28h	Not Used
2Ah	Not Used
2Ch	Not Used
2Eh	Not Used
30h	Not Used
32h	Not Used
34h	Not Used
36h	Not Used
38h	Not Used
3Ah	Not Used
3Ch	Not Used

2. VXI Device Register Description (Continued)

3Eh **Control Register (read/write)**

A read of the 16-bit register provides the module control status.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reserved										IRQ Level Select			Rvd	Reg Bit	Coil Ena

(Bits 15-6) Reserved
0h = Should always readback zeroes

(Bits 5-3) IRQ Level Select: These bits reflect the module's Interrupt Request Level
0h = No IRQ Level Selected, module Interrupt disabled.
1h = IRQ Level 1 Selected, module Interrupt enabled.
2h = IRQ Level 2 Selected, module Interrupt enabled.
3h = IRQ Level 3 Selected, module Interrupt enabled.
4h = IRQ Level 4 Selected, module Interrupt enabled.
5h = IRQ Level 5 Selected, module Interrupt enabled.
6h = IRQ Level 6 Selected, module Interrupt enabled.
7h = IRQ Level 7 Selected, module Interrupt enabled.

(Bit 2) Reserved
0h = Should always readback zero

(Bit 1) Reg Bit: This bit indicates the device's readback mode.
0b = Relay coil state readback is enabled

(Bit 0) Coil Enable This bit indicates the device's coil driver state.
0b = Relay coil driver is enabled
1b = Relay coil driver is disabled

2. VXI Device Register Description (Continued)

A write to this 16-bit register is sets the module control.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reserved										IRQ Level Select			Rvd	Reg Bit	Coil Ena

(Bits 15-6) Reserved
0h = Should always be set to zeroes

(Bits 5-3) IRQ Level Select: These bits select the module's Interrupt Request Level
0h = No IRQ Level Selected, module Interrupt disabled.
1h = IRQ Level 1 Selected, module Interrupt enabled.
2h = IRQ Level 2 Selected, module Interrupt enabled.
3h = IRQ Level 3 Selected, module Interrupt enabled.
4h = IRQ Level 4 Selected, module Interrupt enabled.
5h = IRQ Level 5 Selected, module Interrupt enabled.
6h = IRQ Level 6 Selected, module Interrupt enabled.
7h = IRQ Level 7 Selected, module Interrupt enabled.

(Bit 2) Reserved
0h = Should always be set to zero

(Bit 1) Reg Bit: This bit controls the device's readback mode.
0b = Enable relay coil state readback
(This should always be set to zero)

(Bit 0) Coil Enable: This bit controls the device's relay coil driver.
0b = Enable relay coil driver
1b = Disable relay coil driver

3. ASCOR Register Description

3.1 ASCOR Custom Registers for the ASCOR 3000-46 Module

The ASCOR 3000-46 Custom Registers are located in the A24 Address Space. The custom registers start at offset 8000h within the A24 address space assigned by the resource manager. All 3000-46 custom registers can be accessed as a 16-bit word. Additionally, since the ASCOR 3000-46 Flex Switch features VXIMAX™, the custom registers can also be accessed as 32-bit words.

Offset Address in 16-Bit Mode
The 3000-46 Custom Registers can be accessed in 16-bit mode. Address offsets for the custom registers increment by two (2). Sample offsets for the ASCOR Custom Registers in 16-bit word mode:

Offset	Description
8000h	First Custom Register
8002h	Second Custom Register
8004h	Third Custom Register
8006h	Fourth Custom Register
. . . and so on . . .	

Offset address in 32-Bit Mode
The 3000-46 Custom Registers can also be accessed in 32-bit mode. Address offsets for the custom registers increment by four (4). Sample offsets for the ASCOR Custom Registers in 32-bit word mode:

Offset	Description
8000h	First Custom Register
8004h	Second Custom Register
8008h	Third Custom Register
800Ch	Fourth Custom Register
. . . and so on . . .	

3. ASCOR Register Description (Continued)

3.2 ASCOR Relay Registers

A subset of the ASCOR 3000-46 Custom Registers are relay registers.
See connector assignments for pin and channels assignments with associated relays.

3000-46 Relay Registers	
8000h	Relays K1-16, Pin 1 (Ch. 1-8), Pin 2 (Ch. 1-8)
8002h	Relays K17-32, Pin 3 (Ch. 1-8), Pin 4 (Ch. 1-8)
8004h	Relays K33-48, Pin 5 (Ch. 1-8), Pin 6 (Ch. 1-8)
8006h	Relays K49-64, Pin 7 (Ch. 1-8), Pin 8 (Ch. 1-8)
8008h	Relays K65-80, Pin 9 (Ch. 1-8), Pin 10 (Ch. 1-8)
800Ah	Relays K81-96, Pin 11 (Ch. 1-8), Pin 12 (Ch. 1-8)
800Ch	Relays K97-112, Pin 13 (Ch. 1-8), Pin 14 (Ch. 1-8)
800Eh	Relays K113-128, Pin 15 (Ch. 1-8), Pin 16 (Ch. 1-8)
8010h	Relays K129-144, isolation relays, group 1,2
8020h	Relays K1-16, Pin 17 (Ch. 1-8), Pin 18 (Ch. 1-8)
8022h	Relays K17-32, Pin 19 (Ch. 1-8), Pin 20 (Ch. 1-8)
8024h	Relays K33-48, Pin 21 (Ch. 1-8), Pin 22 (Ch. 1-8)
8026h	Relays K49-64, Pin 23 (Ch. 1-8), Pin 24 (Ch. 1-8)
8028h	Relays K65-80, Pin 25 (Ch. 1-8), Pin 26 (Ch. 1-8)
802Ah	Relays K81-96, Pin 27 (Ch. 1-8), Pin 28 (Ch. 1-8)
802Ch	Relays K97-112, Pin 29 (Ch. 1-8), Pin 30 (Ch. 1-8)
802Eh	Relays K113-128, Pin 31 (Ch. 1-8), Pin 32 (Ch. 1-8)
8030h	Relays K129-144, isolation relays, group 3, 4

note: relays K1-144 in address space 8020h through 8030h are located on the daughter board, 85002170. These registers, which are also located in the A24 Address Space, have a few unique properties:

Read / Write
ASCOR Relay Registers are read / write registers. When a relay register is read the states of the coils associated to that register are returned. Normally, the states of the coils should match the values which were written. They may not match when error conditions occur or when relay coil drivers are disabled. On some rare occasions, the design of the module may not permit matching results.

Read Mode
The read mode of the Relay Registers can be switched between reading the states of the coils and reading data registers used for programming coils. The default read mode is reading the coil states. Any module reset brings the read mode back to reading coil states.

4. Programming with Registers

4.1 Programming VXI Device Registers

The 3000-46 VXI Device Registers are read / write registers, but some device registers must be written only by the resource manager. See Section 2: VXI Device Register Description for registers reserved for the resource manager access. Since all 16 bits are programmed with a single write operation, care must be taken when values are written to the device registers in order to prevent unintended function enabling or disabling. In order to preserve the states of the functions that you do not want to alter, perform the following sequence of operations:

1. Read the device register first,
2. Modify only the bits you intend to program using the copy of the device register,
3. Write the new value back to the device register.

Here are some example codes for reading the 3000-46 ID Register.

Example using National Instruments NI-VXI calls with the Logical Address of 5

```
/*  C code segment for reading the ID Register using VXIinReg call.  */

        int16     ret;
        uint16    la        = 5;      /* Logical Address */
        uint16    reg       = 0;      /* ID Register offset */
        uint16    value16;

        /* Read the ID Register */
        ret = VXIinReg (la, reg, &value16);

        /* Check for read error */
        if (ret < 0)
                /*  Error occurred during read.  */;

/*  C code segment for reading the ID Register using VXIin call.  */

        int16     ret;
        uint16    accessparms       = 1;          /* A16, Nonprivileged data access, Motorola Byte Order */
        uint32    address           = 0xC140;     /* LA * 0x40 + 0xC000 + ID Register offset  */
        uint16    width             = 2;          /* 16-bit word */
        uint16    value16;

        /* Read the ID Register */
        ret = VXIin (accessparms, address, width, &value16);

        /* Check for read error */
        if (ret < 0)

                /*  Error occurred during read.  */;
```

4. Programming with Registers (Continued)

Example using VXIplug&play VISA calls

```
/*  C code segment for reading the ID Register using ViIn16 call.  */

        ViStatus        as3xxx_status;
        ViSession       vi;                     /*  vi from previous call to as3xxx_init  */
        ViUInt16        space       = VI_A16_SPACE;
        ViBusAddress    offset      = 0x00;   /*  Offset of the ID Register  */
        ViUInt16        val16;

        /* Read the ID Register */
        as3xxx_status = viIn16 (vi, space, offset, &val16);

        /* Check for read error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during read.  */;
```

4. Programming with Registers (Continued)

4.2 Resetting ASCOR VXI Module

The ASCOR 3000-46 Flex Switch can be reset to a power up state by setting the Device Reset bit of the Status / Control (04h) register in the VXI Configuration Registers. Care must be taken when writing to this register since all bits other than the Device Reset bit must not be changed. In order to preserve the states of all other bits, perform the following sequence of operations:

1. Read the Status / Control register,
2. Set only the Device Reset bit,
3. Write the modified word to the Status / Control register.

After the reset operation, the module must be brought back to a normal operational mode in order for the relays to close. The 3000-46 can be set back to the normal operation mode by clearing the Device Reset bit without modifying any other bits.

Here are some example codes for resetting the 3000-46.

Example using National Instruments NI-VXI calls with the Logical Address of 5

```
/*  C code segment for resetting the ASCOR VXI module using VXIinReg and VXIoutReg calls  */

        int16     ret;
        uint16    la        = 5;      /* Logical Address */
        uint16    reg       = 4;      /* Status / Control register offset */
        uint16    value16;

        /* Read the Status / Control Register */
        ret = VXIinReg (la, reg, &value16);

        /* Check for read error */
        if (ret < 0)
                /*  Error occurred during read.  */;

        /* Set the Device Reset bit in the copy of the Status / Control Register */
        value16 |= 0x0001;

        /* Write to the Status / Control Register */
        ret = VXIoutReg (la, reg, value16);

        /* Check for write error */
        if (ret < 0)
                /*  Error occurred during write.  */;

        /* Bring the module back to the normal operation by
          clearing the Device Reset bit in the copy of the Status / Control Register */
        value16 &= 0xFFFE;
```

4. Programming with Registers (Continued)

```
/* Write to the Status / Control Register */
ret = VXIoutReg (la, reg, value16);

/* Check for write error */
if (ret < 0)
        /*  Error occurred during write.  */;
```

```
/*  C code segment for resetting the ASCOR VXI module using VXIin and VXIout calls  */

int16     ret;
uint16    accessparms     = 1;          /* A16, Nonprivileged data access, Motorola Byte Order */
uint32    address         = 0xC144;     /* LA * 0x40 + 0xC000 + Control / Status Register */
uint16    width           = 2;          /* Word */
uint16    value16;
uint32    value32;

/* Read the Status / Control Register */
ret = VXIin (accessparms, address, width, &value16);

/* Check for read error */
if (ret < 0)
        /*  Error occurred during read.  */;

/* Set the Device Reset bit in the copy of the Status / Control Register */
value32 = value16;
value32 |= 0x0001;

/* Write to the Status / Control Register */
ret = VXIout (accessparms, address, width, value32);

/* Check for write error */
if (ret < 0)
        /*  Error occurred during write.  */;

/* Bring the module back to the normal operation by
   clearing the Device Reset bit in the copy of the Status / Control Register */
value32 &= 0xFFFE;

/* Write to the Status / Control Register */
ret = VXIout (accessparms, address, width, value32);

/* Check for write error */
if (ret < 0)
        /*  Error occurred during write.  */;
```

4. Programming with Registers (Continued)

Example using VXIplug&play VISA calls

```
/*  C code segment for resetting the ASCOR VXI Module  */

        ViStatus        as3xxx_status;
        ViSession       vi;                     /*  vi from previous call to as3xxx_init  */
        ViUInt16        space       = VI_A16_SPACE;
        ViBusAddress    offset      = 0x04;   /*  Offset of the Status / Control Register  */
        ViUInt16        value16;

        /* Read the Status / Control Register */
        as3xxx_status = viIn16 (vi, space, offset, &value16);

        /* Check for read error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during read.  */;

        /* Set the Device Reset bit in the copy of the Status / Control Register */
        value16 |= 0x0001;

        /* Write to the Status / Control Register */
        as3xxx_status = viOut16 (vi, space, offset, value16);

        /* Check for write error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during write.  */;

        /* Bring the module back to the normal operation by
          clearing the Device Reset bit in the copy of the Status / Control Register */
        value16 &= 0xFFFE;

        /* Write to the Status / Control Register */
        as3xxx_status = viOut16 (vi, space, offset, value16);

        /* Check for write error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during write.  */;
```

4. Programming with Registers (Continued)

4.3 Changing the Relay Register Read Mode for the 3000-46

The ASCOR 3000-46 Relay read mode can be changed to read the data register instead of the coil states. Change the mode by setting the Reg Bit of the Relay Control (3Eh) register in the VXI Device Dependent Registers. Care must be taken when writing to this register since all bits other than the Reg Bit must not be changed. In order to preserve the states of all other bits, perform the following sequence of operations:

1. Read the Relay Control register,
2. Set only the Reg Bit,
3. Write the modified word to the Relay Control register.

Subsequent reading of the Relay Registers will return the values of the data registers instead of the coil states. Reg Bit is cleared and the read mode is reset to reading the coil states when the 3000-46 is reset.

Here are some example codes for changing the read mode of the 3000-46.

Example using National Instruments NI-VXI calls with the Logical Address of 5

```
/*  C code segment for switching to data register readback using VXIinReg and VXIoutReg calls  */

        int16     ret;
        uint16    la        = 5;      /* Logical Address */
        uint16    reg       = 0x3E;   /* Relay Control register offset */
        uint16    value16;

        /* Read the Status / Control Register */
        ret = VXIinReg (la, reg, &value16);

        /* Check for read error */
        if (ret < 0)
                /*  Error occurred during read.  */;

        /* Set the Reg Bit in the copy of the Status / Control Register */
        value16 |= 0x0002;

        /* Write to the Status / Control Register */
        ret = VXIoutReg (la, reg, value16);

        /* Check for write error */
        if (ret < 0)
                /*  Error occurred during write.  */;
```

4. Programming with Registers (Continued)

```
/*  C code segment for change to data register readback using VXIin and VXIout calls  */

        int16     ret;
        uint16    accessparms        = 1;          /* A16, Nonprivileged data access, Motorola Byte Order */
        uint32    address   = 0xC17E;              /* LA * 0x40 + 0xC000 + Relay Control Register  */
        uint16    width     = 2;                   /* Word */
        uint16    value16;
        uint32    value32;

        /* Read the Status / Control Register */
        ret = VXIin (accessparms, address, width, &value16);

        /* Check for read error */
        if (ret < 0)
                /*  Error occurred during read.  */;

        /* Set the Reg Bit in the copy of the Status / Control Register */
        value32 = value16;
        value32 |= 0x0002;

        /* Write to the Status / Control Register */
        ret = VXIout (accessparms, address, width, value32);

        /* Check for write error */
        if (ret < 0)
                /*  Error occurred during write.  */;
```

Example using VXIplug&play VISA calls

```
/*  C code segment for change to data register readback using VISA calls  */

        ViStatus          as3xxx_status;
        ViSession         vi;                  /*  vi from previous call to as3xxx_init  */
        ViUInt16          space     = VI_A16_SPACE;
        ViBusAddress      offset    = 0x3E;   /*  Offset of the Relay Control Register  */
        ViUInt16          value16;

        /* Read the Status / Control Register */
        as3xxx_status = viIn16 (vi, space, offset, &value16);

        /* Check for read error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during read.  */;

        /* Set the Reg Bit in the copy of the Status / Control Register */
        value16 |= 0x0002;

        /* Write to the Status / Control Register */
        as3xxx_status = viOut16 (vi, space, offset, value16);

        /* Check for write error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during write.  */;
```

4. Programming with Registers (Continued)

4.4 Programming the ASCOR 3000-46 Custom Registers

The ASCOR 3000-46 Custom Registers can be accessed through the registers in the A24 address space. Since all 16 or 32 bits are programmed with a single write operation, care must be taken when values are written to these registers in order to prevent unintended side effects. To preserve the configuration that you do not want to program, perform the following sequence of operations:

1. Read the register first,
2. Modify only the bits you intend to program using the copy of the register,
3. Write the new value back to the register.

Refer to ***Section 1 (Page 15-23)*** for the definition of the custom registers found in the 3000-46.

All 3000-46 Custom Registers are located in the A24 address space. A unique A24 base address is assigned by the resource manager to the A24 module in the system. The assignment of the base address is performed every time when the resource manager is executed. The 3000-46 Custom Registers start at an offset from the module's assigned A24 base address. The sum of the two values, A24 base address and the custom register offset, gives the unique custom register address. Some interface library calls require the A24 custom register address. VXIplug&play library calls require only the offset of the register from the base address. The A24 base address is added to the offset internally.

Here are some example codes for writing to the 3000-46 custom registers.

Example using National Instruments NI-VXI calls

```
/* C code segment for writing the value 0x1000 to the first custom register,
   assume A24 Base Address of 200000h */

        int16     ret;
        uint16    accessparms      = 2;     /* A24, Nonprivileged data access, Motorola Byte Order */
        uint32    address;
        uint16    width            = 2;     /* Word */
        uint32    value32;

        address   = 0x208000;      /* A24 Base Address + offset of the first custom register */
        value32   = 0x1000;        /* Value to write to the first custom register */

        /* Write to the first custom register */
        ret = VXIout (accessparms, address, width, value32);

        /* Check for write error */
        if (ret < 0)
                /* Error occurred during write. */;
```

4. Programming with Registers (Continued)

Example using VXIplug&play VISA calls

```
/*  C code segment for writing the value 0x1000 to the first custom register  */

        ViStatus        as3xxx_status;
        ViSession       vi;
        ViUInt16        space     = VI_A24_SPACE;
        ViBusAddress    offset    = 0x8000;          /*  Offset of the first custom register  */
        ViUInt16        value16;

        value16   = 0x1000;          /*  Value to write to the first custom register  */

        /* Write to the first custom register */
        as3xxx_status = viOut16 (vi, space, offset, value16);

        /* Check for write error */
        if (as3xxx_status < VI_SUCCESS)
                /*  Error occurred during write.  */;
```

5. *Miscellaneous Questions and Answers*

5.1 **Q: How do I calculate the 3000-46 Module's A16 Base Address?**

A: The A16 Base Address of the 3000-46 is derived from the Logical Address. The formula for calculating the A16 Base Address is as follows:

A16 Base Address = C000h + LA x 40h

where LA is the Logical Address of a module

Logical Address	A16 Base Address
1	C040h
2	C080h
3	C0C0h
4	C100h
5	C140h
and so on . . .	

If the module's Logical Address is 5 then A16 Base Address is C 140h and Device Register addresses are as follows:

Address	Device Registers
C140h	ID Register / Logical Address Register
C142h	Device Type Register
C144h	Status / Control Register
C146h	Offset Register
C17Eh	Relay Control Register

If the module's Logical Address is 8 then A16 Base Address is C200h and Device Register addresses are as follows:

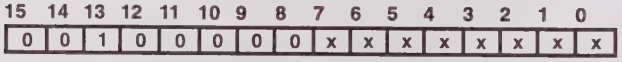
Address	Device Registers
C200h	ID Register / Logical Address Register
C202h	Device Type Register
C204h	Status / Control Register
C206h	Offset Register
C23Eh	Relay Control Register

5. Miscellaneous Questions and Answers (Continued)

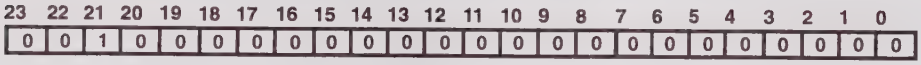
5.2 Q: How do I calculate the 3000-46 Module's A24 Base Address?

A: The A24 Base Address of the 3000-46 can be derived from the value stored in the Offset Register (06h). To obtain the A24 base address, take the 8 most significant bits of the Offset register and map them to the 8 most significant bits of the A24 Base Address. All other bits in the A24 Base Address are set to zeroes.

Offset Register (04h)



A24 Base Address



Following are some examples of the Offset Register Values and the corresponding A24 Base Addresses.

Offset Register Values	Derived A24 Base Addresses
20XXh	200000h
30XXh	300000h
70XXh	700000h

Alternatively, A24 Base Address of a device can be obtained by issuing a library call.

Example using National Instruments NI-VXI calls with the Logical Address of 5

```
/* C code segment for obtaining the device's A24 Base Address */

        int16   ret;
        uint16  la      = 5;    /* Logical Address */
        uint16  field   = 12;   /* Base of A24/A32 address space */
        uint32  baseA24;

        /* Get the A24 Base Address */
        ret = GetDevInfo (la, field, &baseA24);

        /* Check for function error */
        if (ret < 0)
                /* Error occurred during GetDevInfo. */;
```

5. *Miscellaneous Questions and Answers (Continued)*

5.3 Q: How do I Change the 3000-46 Module's Logical Address?

A: The Logical Address of ASCOR 3000-46 Module can be changed manually using the two rotary switches located in the back of the module. These rotary switches represent the high and low hex digits of an eight bit Logical Address. Orient the 3000-46 module as shown in the illustration below. The rotary switch on the bottom (D1) represents the high hex digit and the rotary switch on the top (D2) represents the low hex digit. Each rotary switch can be turned clockwise or counter-clockwise. Turn each rotary switch until the desired hex digit is aligned with the small white dot on the left side of the rotary switch casing. Valid Logical Addresses for Static Configuration are between 01h (1) and FEh (254). The Logical Address of 00h (0) is reserved for Slot 0 computer. Do not set the Logical Address of ASCOR VXI Modules to 0. The example below show the rotary switch settings for a 3000-46 Logical Address of 53.

ASCOR VXI Modules also supports Dynamic Configuration methods of assigning Logical Addresses. In order for Dynamic Configuration to work properly the resource manager software must also support Dynamic Configuration. Set the rotary switches on the modules to FFh (255) so that the resource manager software can dynamically assign Logical Addresses to ASCOR VXI .

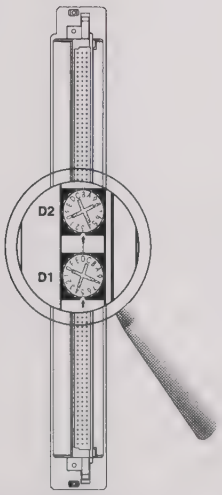


Figure 12: Model 3000-46 Flex Switch (Rear View)

ASCOR
INCORPORATED
A Giga-tronics Company

MODEL 3000-46

Flex Switch VXI Module Technical Manual

Warranty Service

All warranty service will be performed by ASCOR or ASCOR authorized personnel at ASCOR's facilities in Fremont, CA. Before a unit is returned for warranty service, Customer must contact ASCOR service department at (510-490-8819) to receive a Return Authorization (RA) Number. This number must be prominently marked on the return package.

Upon receipt of the returned product, ASCOR will evaluate the warranty claim to ensure that the product does qualify for warranty coverage. ASCOR will notify the customer within 2 working days of receipt of the defective unit as to ASCOR's determination regarding warranty coverage and the length of time that will be required to repair or replace the defective unit or parts. The decision to repair or replace unit and or parts will be ASCOR's.

If the returned product does not qualify for warranty service for any reason, ASCOR will advise customer. ASCOR will also advise customer of costs to repair or replace defective unit or parts so that customer may then decide what course of action will be taken.

Copyright © 1997 by ASCOR Inc., Fremont, California. Printed in the United States of America. All rights reserved. Contents of this publication may not be reproduced in any form without permission of the copyright owner.

10/01/94

Table of Contents

Module Assembly and Schematic Drawings

Section 4

Module

PL90400750
Assy 90400750

Schematics

PL85002160
Assy 85002160
SCH85002160

PL85002170
Assy 85002170
SCH85002170

PN: PL90400750

ASCOR INCORPORATED
A Giga-tronics Company

THE DATA CONTAINED HEREIN,ARE THE EXCLUSIVE PROPERTY OF ASCOR,INC., ISSUED IN STRICT CONFIDENCE AND SHALL NOT,WITHOUT THE PRIOR WRITTEN PERMISSION OF ASCOR,INC., BE REPRODUCED,COPIED OR USED FOR ANY PURPOSE WHATSOEVER,EXCEPT THE MANUFACTURE OF ARTICLES FOR ASCOR,INC.

PARTS LIST

	REV	A											
ENGR.	ECO#	RELEASE											
CHG.	DATE	10/16/97											

APPROVAL SIGNATURES		DATE	TITLE		
CHECKER		10/27/97	MODULE,FLEXI SWITCH MODEL 3000-46		
ENGINEER		10/27/97	CAGE CODE	DWG NO.	REV
MANUFACTURE	B Drake	10/27/97	0B5C1	PL90400750	A
QUALITY		10/16/97	SIZE A	SHEET 1 OF 2	

FORM PL2CVR.XLS 251/1032

PL: 90400750

DESC: MODULE,FLEXI SWITCH MODEL 3000-46

PARTS LIST

REV: A

ECN:

FIND NO.	STOCK NO.	COMPONENT DESCRIPTION	UM	QTY	CAGE NO.	MFG NAME	PART NO.	REFERENCE DESIGNATOR
	07500740	PROGRAMING GUIDE FOR ASCOR VXI MODULES	EA	1	0B5C1	ASCOR	07500740	
	07500770	MANUAL,MODEL 3000-46	EA	1	0B5C1	ASCOR	07500770	
	PI90400750	PROC INSTR,MODULE FLEXI SW,MODEL 3000-46	EA	0	0B5C1	ASCOR	PI90400750	
	PL90400750	PARTS LIST,MODULE FLEXI SW,MODEL 3000-46	EA	0	0B5C1	ASCOR	PL90400750	
0001	85002160	PCA,FLEXI SWITCH MB	EA	1	0B5C1	ASCOR	85002160	
0002	85002170	PCA,FLEXI SWITCH DB	EA	1	0B5C1	ASCOR	85002170	
0003	78005600	PANEL,FRONT MODEL 3000-46	EA	1	0B5C1	ASCOR	78005600	
0004	40300120	LED,PANEL MOUNT	EA	2	57706	INDUS.DEVICE	5110F5-5V	L1,L2
0005	62300500-001	STANDOFF,.3/16 M-F HEX 4-40 X.312 LG,MOD	EA	2	0B5C1	ASCOR	4502-440-SS	
0006	76004920	BLOCK SUPPORT	EA	1	0B5C1	ASCOR	76004920	
0007	MS24693-2	SCREW, 4-40UNC-2A X 1/4,FLT 100D,CROSS	EA	1	96906	MILSPEC	MS24693-2	
0008	MS24693-1	SCREW, 4-40UNC-2A X 3/16,FLT 100D,CROSS	EA	16	96906	MILSPEC	MS24693-1	
0009	MS51957-12	SCREW, 4-40UNC-2A X 3/16,PAN,CROSS-REC,	EA	10	96906	MILSPEC	MS51957-12	
0010	65000420-001	KIT,PCA EJECTOR HDL.,LESS ID.PLT 60511-1	EA	1	0B5C1	ASCOR	65000420-001	
0011	79300210-998	ID PLATE,MOD EJECTOR HDL,VXI LOGO	EA	1	0B5C1	ASCOR	79300210-998	
0012	79300210-999	ID PLATE,MOD EJECT HDL,ASCOR	EA	1	0B5C1	ASCOR	79300210-999	
0013	62300160-001	STANDOFF, F-F, 4-40 X 3/4, MODIFIED	EA	6	0B5C1	ASCOR	62300160-001	
0014	62300480	STANDOFF,3/16 HEX,4-40 X .375 SST	EA	7	40337	RAF	2055-440-SS-20	
0015	62300170-001	STANDOFF,3/16 HEX M-F,4-40 X 3/16,SS	EA	7	40337	RAF	4500-440-SS-0	
0016	05200080	LOCTITE,GRADE CV	OZ	0	05972	LOCTITE	GRADE CV	
0017	05200020	LOCTITE,#222 THREAD LOCKING,PINK	ML	0	05972	LOCTITE	22231-LOC	
0018	78000690-005	COVER,VXI MODULE .75 HIGH	EA	1	0B5C1	ASCOR	78000690-005	
0019	78000700-001	COVER,.19 HIGH,	EA	1	0B5C1	ASCOR	78000700-001	
0020	79300110	LABEL:SERIAL NUMBER,.875 X 1.75	EA	1	8J977	CELLOTAPE	5-4-RF	
0021	79300170	LABEL,CAUTION-SEN.ELEC.DEV.6X2, SHIPPING	EA	1	0B5C1	ASCOR	79300170	
0022	SN63WRMAP2	SOLDER,TIN ALLOY:TIN-LEAD ALLOY	EA	0	81348	MILSPEC	SN63WRMAP2	AS REQUIRED
0023	79300570	LABEL,1.0 X 1.0,VXIMAX	EA	1	V20997	FUJITA GRAPH	79300570	
0025	MS24693-4	SCREW, 4-40 UNC-2A X 3/8,FLT,100D,CROS,	EA	1	96906	MILSPEC	MS24693-4	

Contract No.	
Next Assy	FINAL
Used On	MODEL 3000-46
Last Update	1997/10/10

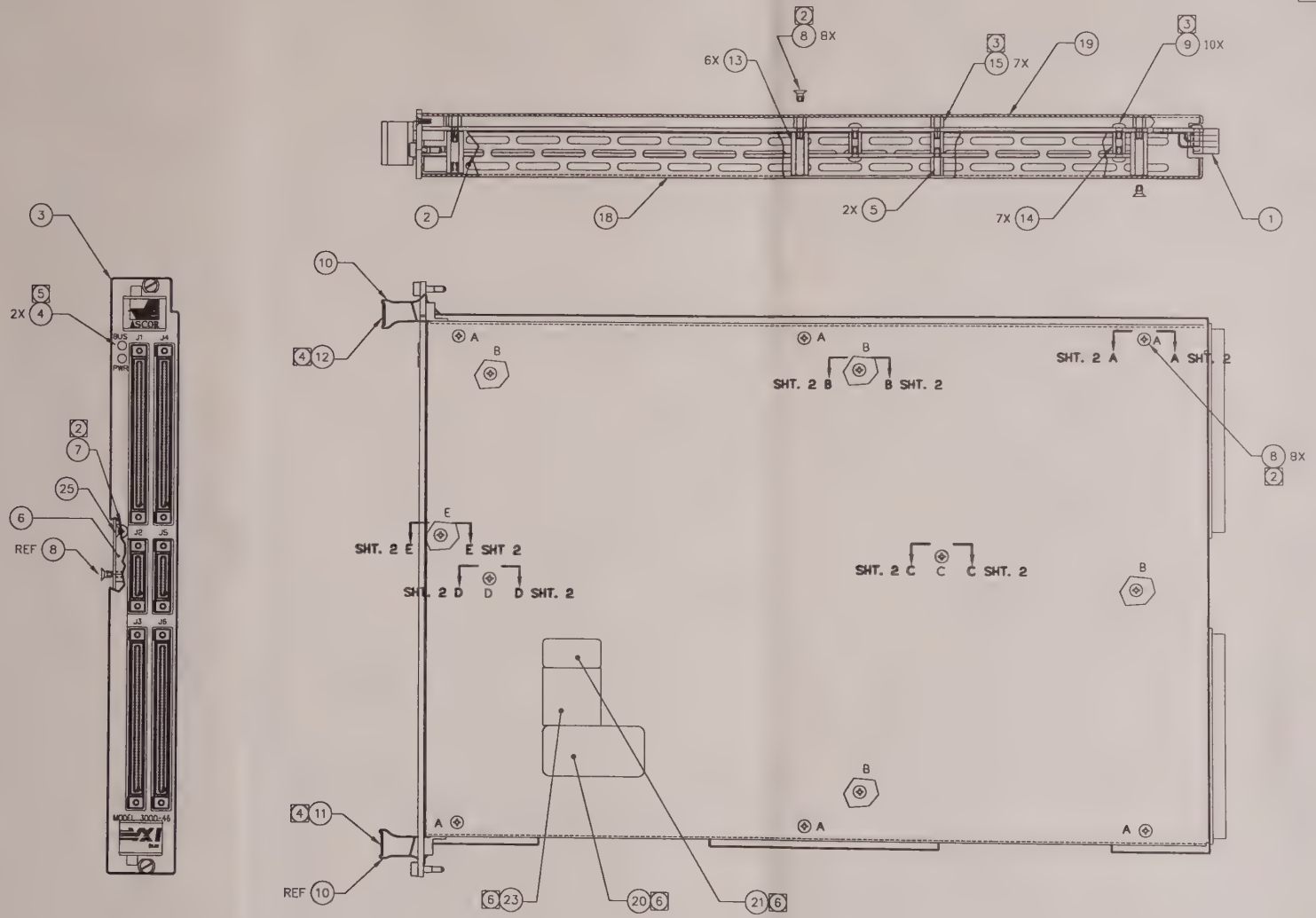
DESIGN ACTIVITY

ASCOR INCORPORATED

47790 WESTINGHOUSE DRIVE
FREMONT, CA. 94539

CAGE CODE

0B5C1



[4] INSTALL ID PLATES (ITEM 11) AND (ITEM 12) TO CENTER OF EJECTOR HANDLES (ITEM 10).

[3] APPLY LOCTITE GRADE CV (ITEM 16) TO THREADS.

[2] APPLY LOCTITE 222 (ITEM 17) TO COVER SCREW THREADS.

1) INTERPRET DRAWING IN ACCORDANCE WITH DOD-STD-100.

NOTES-UNLESS OTHERWISE SPECIFIED:

[6] ADHERE SERIAL LABEL (ITEM 20), VIX LABEL (ITEM 23) AND CAUTION LABEL (ITEM 21) TO COVER (ITEM 18) LOCATED APPROXIMATELY AS SHOWN.

[5] INSTALL LED (ITEM 4) TO PANEL (ITEM 3) AND SOLDER TO PCA (ITEM 1) SEE WIRING DIAGRAM SHEET 2, FOR CONNECTION.

SEE SEPARATE PARTS LIST – PL90400750

CAGE CODE	DWG NO	SH	REV
0B5C1	90400750	1	A

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
A	RELEASE CAH		

PARTS LIST

ITEM	QTY REQ'D	CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	REF DES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± —
DECIMALS .XX ± —, .XXX ± —
ANGLES ± —
FILE ALL BURRS
RADIUS ALL CAGES
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN C HASKINS	9/97
CHECKED	
ENGR	
Q.C.	
APPR.	

THIRD ANGLE PROJECTION

NEXT ASSY | USED ON | APPLICATION

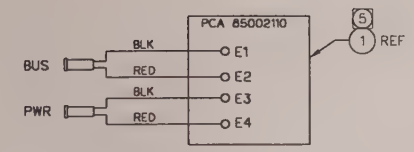
THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION. DO NOT COPY OR EXTRACT WITHOUT PRIOR WRITTEN PERMISSION OF ASCOR

ASCOR a CROSSMATCH company
47790 Westinghouse Drive
Fremont, California

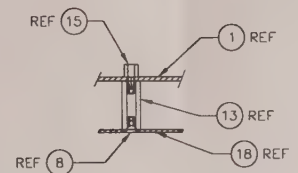
MODULE, FLEXI SWITCH
MODEL 3000-46

SIZE	CAGE CODE	DWG NO	REV
D	0B5C1	90400750	A

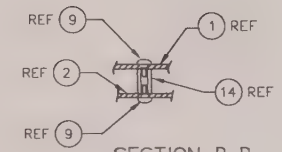
SCALE NONE | V0750A1.DWG | SHEET 1 OF 2



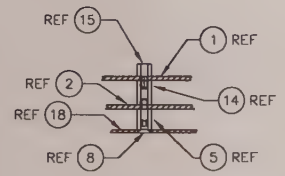
WIRING DIAGRAM FOR LED CONNECTION



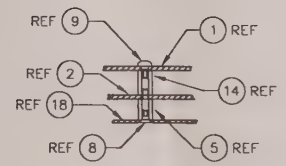
SECTION A-A
(SYMBOL A) 6X



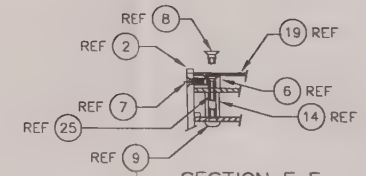
SECTION B-B
(SYMBOL B) 4X



SECTION C-C
(SYMBOL C)



SECTION D-D
(SYMBOL D)



SECTION E-E
(SYMBOL E)

PN: PL85002160

ASCOR INCORPORATED
A Giga-tronics Company

THE DATA CONTAINED HEREIN,ARE THE EXCLUSIVE PROPERTY OF ASCOR,INC., ISSUED IN STRICT CONFIDENCE AND SHALL NOT,WITHOUT THE PRIOR WRITTEN PERMISSION OF ASCOR,INC., BE REPRODUCED,COPIED OR USED FOR ANY PURPOSE WHATSOEVER,EXCEPT THE MANUFACTURE OF ARTICLES FOR ASCOR,INC.

PARTS LIST

	REV	A											
ENGR.	ECO#	RELEASE											
CHG.	DATE	10/29/97											

APPROVAL SIGNATURES		DATE
CHECKER	D. Kumm	11-5-97
ENGINEER		11/97
MANUFACTURE	B Drake	10/30/97
QUALITY	L Stinson	10/30/97

TITLE: **PCA,FLEXI SWITCH MB**

CAGE CODE	DWG NO.	REV
0B5C1	PL85002160	A
SIZE A	SHEET 1 OF 3	

FORM PL2CVR.XLS 251/1032

PL: 85002160
DESC: PCA,FLEXI SWITCH MB

PARTS LIST

REV: A
ECN:

FIND NO.	STOCK NO.	COMPONENT DESCRIPTION	UM	QTY	CAGE NO.	MFG NAME	PART NO.	REFERENCE DESIGNATOR
	PI85002160	PROCESS INSTR.,PCA,FLEXI SW.MB	EA	0	0B5C1	ASCOR	PI85002160	
	PL85002160	PARTS LIST,PCA,FLEXI SWITCH MB	EA	0	0B5C1	ASCOR	PL85002160	
	SCH85002160	SCHEMATIC,PCA,FLEXI SWITCH, MOTHER BOARD	EA	0	0B5C1	ASCOR	SCH85002160	
0001	75002160	PCA,FLEXI SWITCH MB	EA	1	0B5C1	ASCOR	75002160	
0003	12500190-001	CAP,10 UF,10V,TANTALUM,SMD	EA	5	96095	AVX CORP	TAJC106K010R	C115
0003	12500190-001	CAP,10 UF,10V,TANTALUM,SMD	EA	5	96095	AVX CORP	TAJC106K010R	C23,C26,C101,C114,
0004	12500010-001	CAP,0.1 UF,50V,20%,CERAMIC,CHIP,SMD	EA	42	31433	KEMET	C1206C104M5UAC/C78	C1-C22,C27,C28,C102,
0004	12500010-001	CAP,0.1 UF,50V,20%,CERAMIC,CHIP,SMD	EA	42	31433	KEMET	C1206C104M5UAC/C78	C104-C113,C116-C120
0005	37000270-001	IC,5801 OCTAL LATCHED DRIVER	EA	16	0CVK3	ALLEGRO	UCN5801EP	U1-U10,U12,U13,
0005	37000270-001	IC,5801 OCTAL LATCHED DRIVER	EA	16	0CVK3	ALLEGRO	UCN5801EP	U15-U18
0006	52000060-015	FUSE,PICO,10 AMP, SERIES 251	EA	1	7E222	LITTLEFUSE	251 010	F1
0007	89103040	IC,PAL,16 REG WRITE	EA	1	0B5C1	ASCOR	89103040	U11
0008	89103050	IC,PAL 16 REG READ,COIL	EA	1	0B5C1	ASCOR	89103050	U14
0009	89103030	IC,PRGM FIRMWARE,VXI GLUE,MOD.NUM. F2E	EA	1	0B5C1	ASCOR	89103030	
0011	12200040	CAP,1 UF,50V,20%,MULTILAYER	EA	1	59821	MEPCO	K105M30Z5UFVCXD	C103
0012	RNC55H1003FS	RES,100K OHM,1/10W,1%,FILM	EA	1	81349	MILSPEC	RNC55H1003FS	R103
0013	RNC55H3010FS	RES,301 OHM,1/10W,1%,FILM	EA	2	81349	MILSPEC	RNC55H3010FS	R23,R115
0015	30200573-001	IC,74ALS573,OCT D-TYPE TRANS LCH,SOIC	EA	3	01295	TI	SN74ALS573BDW	U104,U105,U107
0016	30200641-101	IC,74ALS641A-1,OCT BUS XCVR,SOIC	EA	2	01295	TI	SN74ALS641A-1DW	U102,U114
0017	30800245-001	IC,74ABT245,OCTAL TRANSCEIVER,SMD	EA	13	1CH66	SIGNETICS	74ABT245D	U19,U20,U22,U23,
0017	30800245-001	IC,74ABT245,OCTAL TRANSCEIVER,SMD	EA	13	1CH66	SIGNETICS	74ABT245D	U101,U108,U109,
0017	30800245-001	IC,74ABT245,OCTAL TRANSCEIVER,SMD	EA	13	1CH66	SIGNETICS	74ABT245D	U111,U113,U115,
0017	30800245-001	IC,74ABT245,OCTAL TRANSCEIVER,SMD	EA	13	1CH66	SIGNETICS	74ABT245D	U116,U118,U119
0018	51400060	SWITCH,16 POS,ROTARY DIP,HEXADECIMAL CM	EA	2	91506	AUGAT	DRW16CRA	D1,D2
0019	10600060	RESNTWK,10K OHM,1.5W,2%,9P/8R,BUSS,SIP	EA	18	91637	DALE	CSC09A-01-103G	R1-R14,R19-R20,R101,R102
0020	10600050	RESNTWK,330/470 OHM,1.7W,2%,10P/8PR,TERM	EA	9	91637	DALE	CSC10A-05-331/471G	R104,R105,R107-R110,
0020	10600050	RESNTWK,330/470 OHM,1.7W,2%,10P/8PR,TERM	EA	9	91637	DALE	CSC10A-05-331/471G	R112-R114
0021	RNC55H8250FS	RES,825 OHM,1/10W,1%,FILM	EA	1	81349	MILSPEC	RNC55H8250FS	R111
0022	50100210	RELAY,DUAL,FORM A,5V,COAXIAL SHIELD	EA	32	71707	COTOCORP	2600-0303	K33-K48,K81-K96
0023	50100060	RELAY,9002-05	EA	96	V22210	TESTCO	9002-05/COTO	K1-K32,K49-K80,K97-K127
0024	56100360	CONN,96 POS,DIN,RA	EA	2	V20780	ELCO	10-8457-096-002-025	P1,P2
0025	56103480	CONN,100 PIN RA PLUG.050	EA	2	06776	ROBINSON	P50E100P1SR1TG	J1,J3
0027	56102740	CONN,70 PIN X .050 ST RECP	EA	2	55322	SAMTEC	TFM-135-21-S-D	P3,P4
0028	37500090-001	IC,28C64,EEPROM,8KX8 CMOS,PLCC,150NS	EA	1	0DUN9	SAMSUNG	KM28C64AJ-15	U106
0029	38100020	IC,CUSTOM GATE ARRAY-VXI BUS INTERFACE	EA	1	V21198	ILS	38100020(CM1204-128	U112

Contract No.	
Next Assy	90400750
Used On	MODEL 3000-46
Last Update	1997/10/29

DESIGN ACTIVITY

ASCOR INCORPORATED
47790 WESTINGHOUSE DRIVE
FREMONT, CA. 94539

CAGE CODE
0B5C1

PL: 85002160
DESC: PCA,FLEXI SWITCH MB

PARTS LIST

REV: A
ECN:

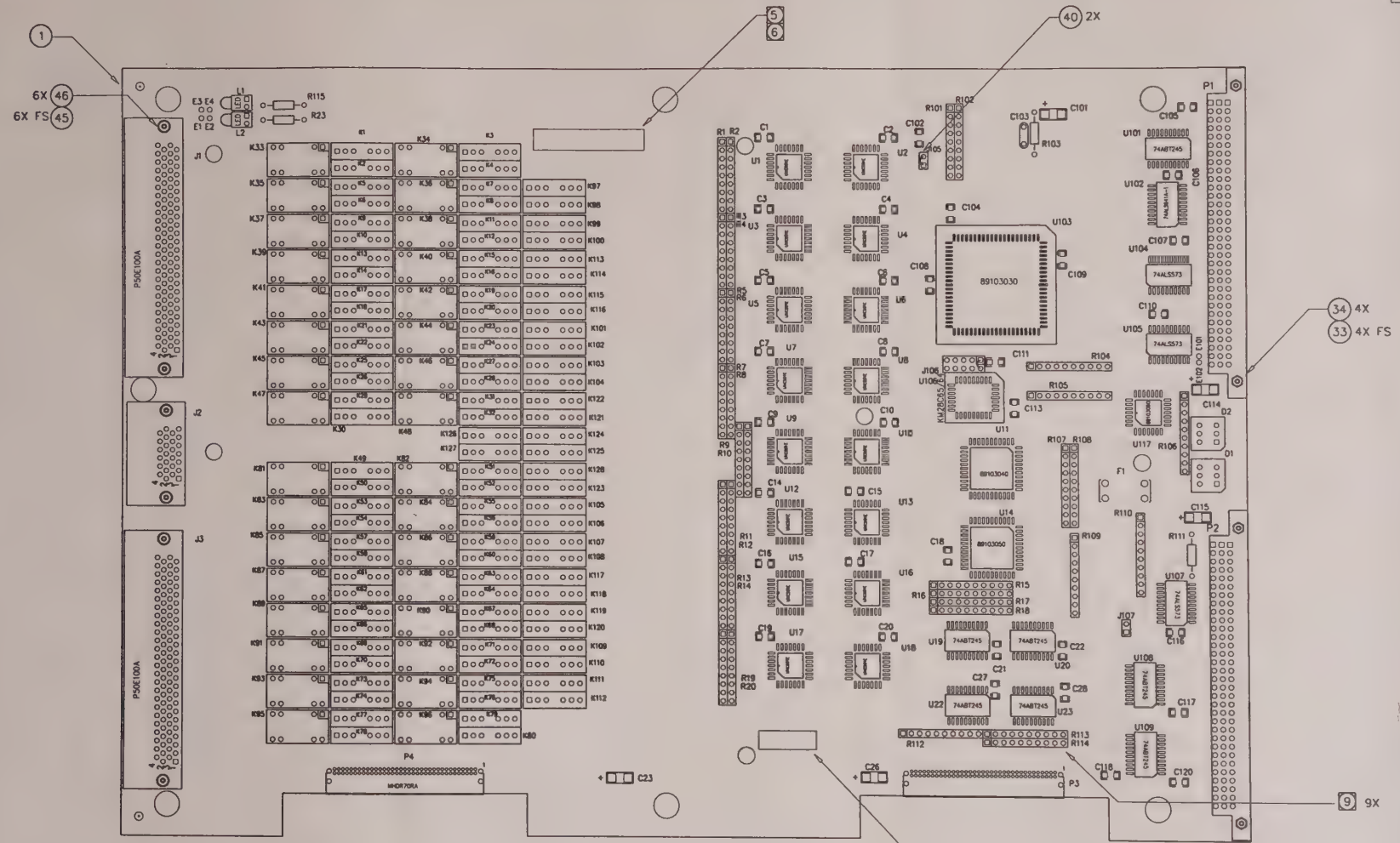
FIND NO.	STOCK NO.	COMPONENT DESCRIPTION	UM	QTY	CAGE NO.	MFG NAME	PART NO.	REFERENCE DESIGNATOR
0030	30400123-001	IC,74HCT123,MULTIVIBRATOR,MONOS,SML OUTL	EA	1	1CH66	SIGNETICS	SN74HCT123D	U110
0031	30400640-001	IC,74HCT640,OCT BUS TRANSCEIVER,SML OUTL	EA	16	77609	RCA/GE	CD74HCT640D	U24-U39
0032	79300170	LABEL,CAUTION-SEN.ELEC.DEV.6X2, SHIPPING	EA	1	0B5C1	ASCOR	79300170	
0033	60010506	SCREW,M2.5X.45X10,PAN,SLOTTED	EA	4	46467	AROW	DIN85A	P1,P2
0034	62003010	NUT,M2.5 X .45,PLAIN HEX,S.S	EA	4	46467	AROW	DIN 934	P1,P2
0035	SN63WRMAP2	SOLDER,TIN ALLOY:TIN-LEAD ALLOY	EA	0	81348	MILSPEC	SN63WRMAP2	AS REQUIRED
0036	79300360	LABEL,BRADY PRINTER,.75 X .25	EA	1	OFTJ9	W.H.BRADY	THT 1-423-10	
0038	10600030	RESNTWK,10K OHM,1.7W,2%,10P/9R,BUSS,SI	EA	5	91637	DALE	CSC10A-01-103G	R15-R18,R106
0039	89103060	IC,PGM PAL,STROBE FILTER,26V12	EA	1	0B5C1	ASCOR	89103060	U117
0040	59900090	JUMPER,24AWG,.1" SPACE	EA	2	63058	MCKENZIE	JO.100X0.125-TEF-24	J105,J106-1
0041	56101990	CONN,26 POS RA .050	EA	1	06776	ROBINSON NUG	P50E26P1SR1TG	J2
0042	70000010	WIRE,28 AWG,SINGLE,TEF,WIREWRAP,BLUE	FT	0	9X418	OK INDUST	CSW28B1000	AS REQUIRED
0044	05200250	ADHESIVE; LOCTITE 444	OZ	0	05972	LOCTITE	05200250	AS REQUIRED
0045	MS51957-4	SCREW, 2-56UNC-2A X 5/16,PAN,CROSS-REC,	EA	6	96906	MILSPEC	MS51957-04	(J1,J2,J3)
0046	NAS671C2	NUT, 2-56,PLAIN,HEX,SML PATTERN,CRES	EA	6	24062	MILSPEC	NAS671C2	(J1,J2,J3)

Contract No.	
Next Assy	90400750
Used On	MODEL 3000-46
Last Update	1997/10/29

DESIGN ACTIVITY

ASCOR INCORPORATED
47790 WESTINGHOUSE DRIVE
FREMONT, CA. 94539

CAGE CODE
0B5C1



CAUTION
THIS ASSEMBLY CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

6 MARK SERIAL NUMBER APPROX. NEAR ASCOR LOGO.

5 MARK ASSEMBLY REVISION APPROX. NEAR ASCOR LOGO.

4 TRIM LEADS SOLDER SIDE .040 MAX.

3) SQUARE PIN DENOTES:

PIN 1 OF DIPS,SIPS AND CONNECTORS
EMITTER OF TRANSISTOR
CATHODE OF DIODE
POSITIVE SIDE OF CAPACITORS

2) ASSEMBLE PER MIL-STD-454.

1) INTERPRET DRAWING IN ACCORDANCE WITH DOD-STD-100.

NOTES-UNLESS OTHERWISE SPECIFIED:

10 REWORK ON 75002160 REV. SEE SHEET THREE.

9 ON 75002160 REV A, ROTATE 90° R104,R105,R107-R110,R112-R114.

8) DO NOT INSTALL L1 & L2.

7) ATTENTION: OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES.

SEE SEPARATE PARTS LIST - PL85002160

SCALE CODE	DWG NO	SH	REV
OB5C1	85002160	1	A

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
A	FORMAL RELEASE		

ITEM	QTY REQD	CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	REF DES
				PARTS LIST		

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION DO NOT COPY OR EXTRACT WITHOUT PRIOR WRITTEN PERMISSION OF ASCOR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS DECIMALS ANGLES
.XX ±
.XXX ±
FILE ALL BURRS
RADIUS ALL EDGES
MATERIAL -----
FINISH -----
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN CHER REIS	9/97
CHECKED	
ENGR	
Q.C.	
APPR.	

ASCOR 47790 Westinghouse Drive Fremont, California

ASSY PCB
FLEXI SWITCH, MB

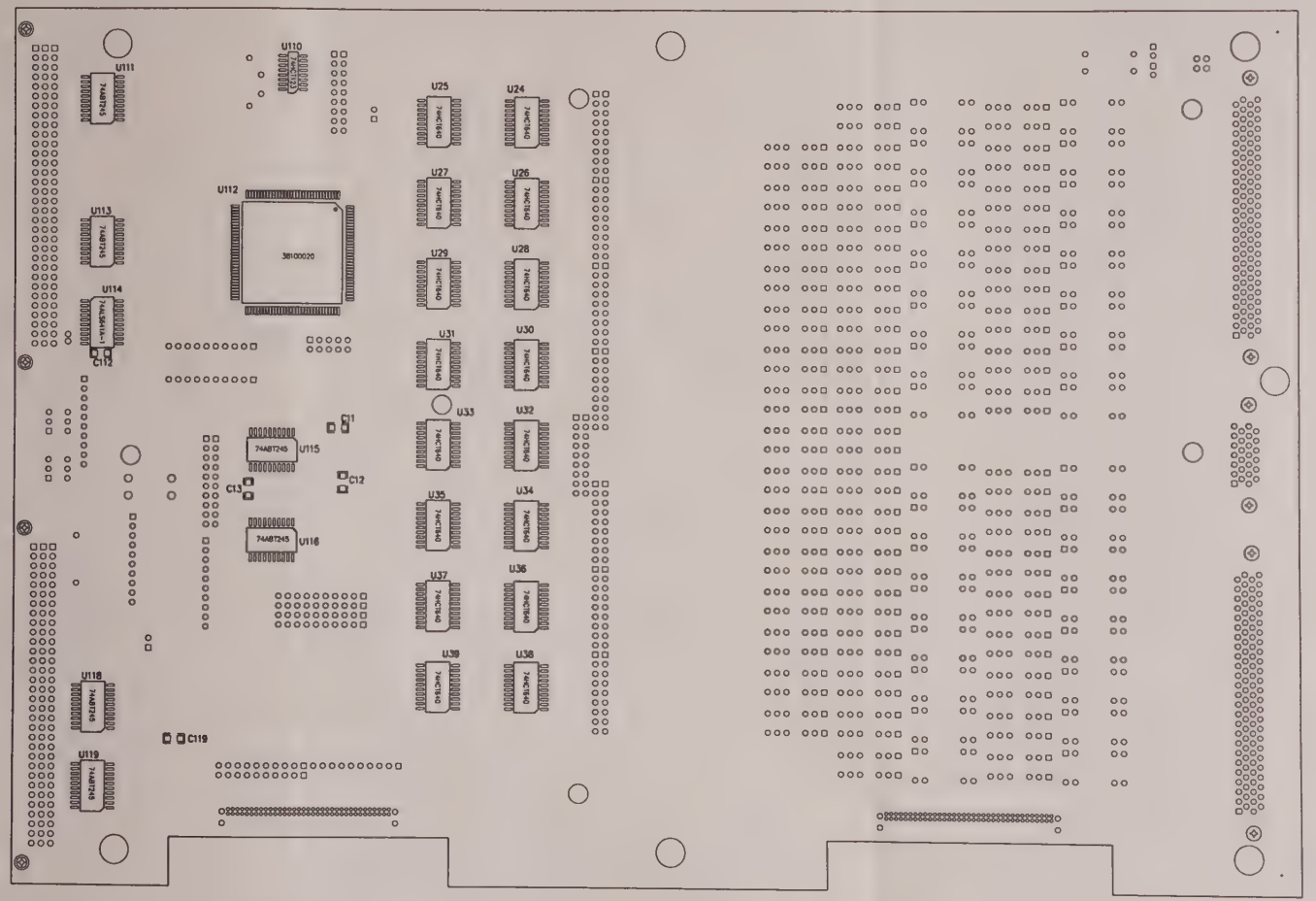
SIZE	CAGE CODE	DWG NO	REV
D	OB5C1	85002160	A

SCALE NONE A2160-1.DWG SHEET 1 OF 3

NEXT ASSY	USED ON
90400750	

APPLICATION

THIRD ANGLE PROJECTION



VIEWED FROM BACK SIDE

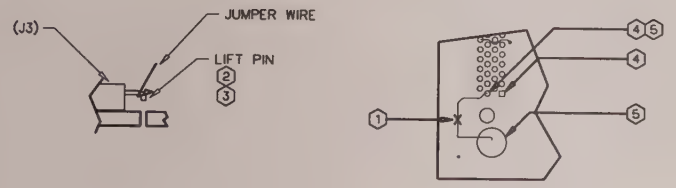
ASCOR INCORPORATED		SIZE D	CAGE CODE 0B5C1	DWG NO 85002160	REV A
DRAWN CHER REIS 9/97					
ISSUED	SCALE NONE	A2160-2.DWG	SHEET 2		

10

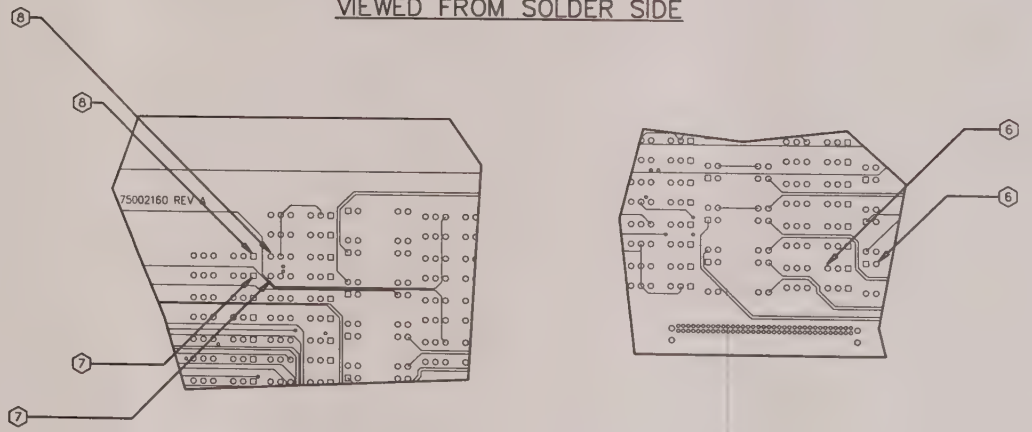
REWORK FOR 75002160 REV A ONLY

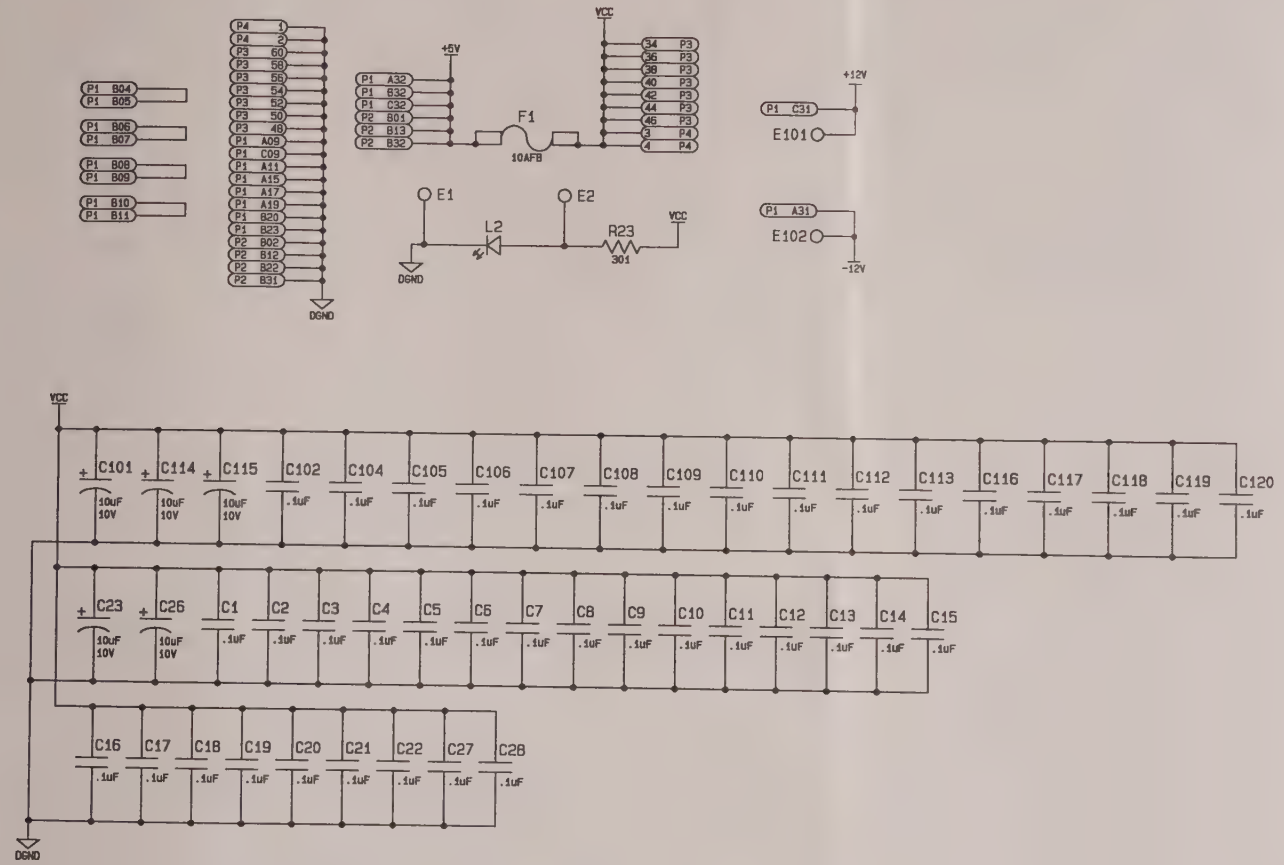
NO.	DESCRIPTION	FROM	TO	ITEM NO.
1	CUT TRACE	J3-2	-	-
2	LIFT PIN	J3-2	-	-
3	LIFT PIN	J3-1	-	-
4	JUMPER	J3-2	J3-1	35,42,44
5	JUMPER	J3-2	PAD	35,42,44
6	JUMPER	K95-2	K77-2	35,42,44
7	JUMPER	K8-4	K98-1	35,42,44
8	JUMPER	K7-4	K97-1	35,42,44

VIEWED FROM COMP SIDE



VIEWED FROM SOLDER SIDE





A	FORMAL RELEASE	2/97	D KEENER
A1	INC PER ECO 1978A CR		

0B5C1 SCH85002160 1 A1

85002160

THIRD ANGLE PROJECTION

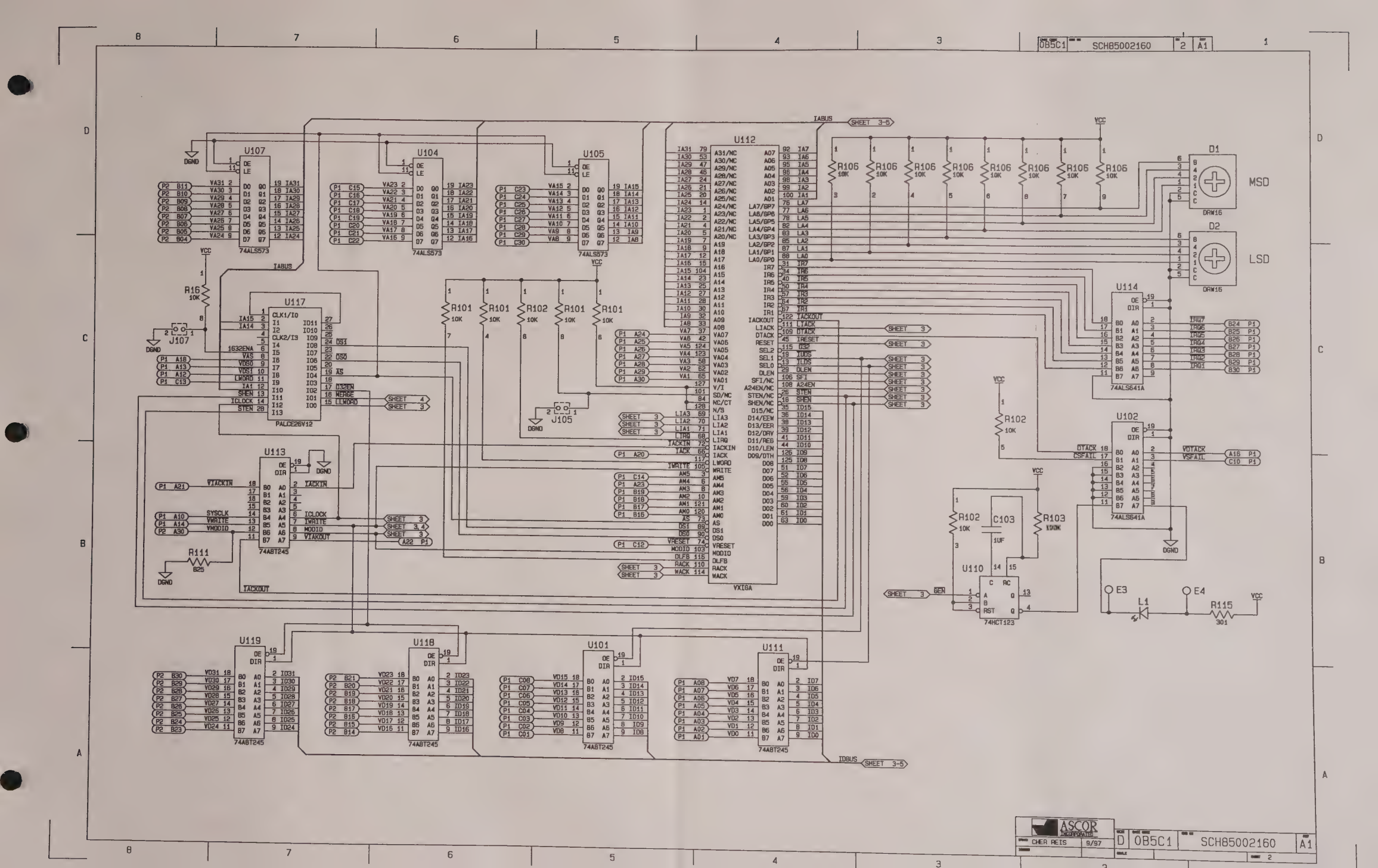
CHER REIS	9/97	
D KEENER	10/97	
J LUM	10/97	
J STINSON	9/97	
J LUM	10/97	

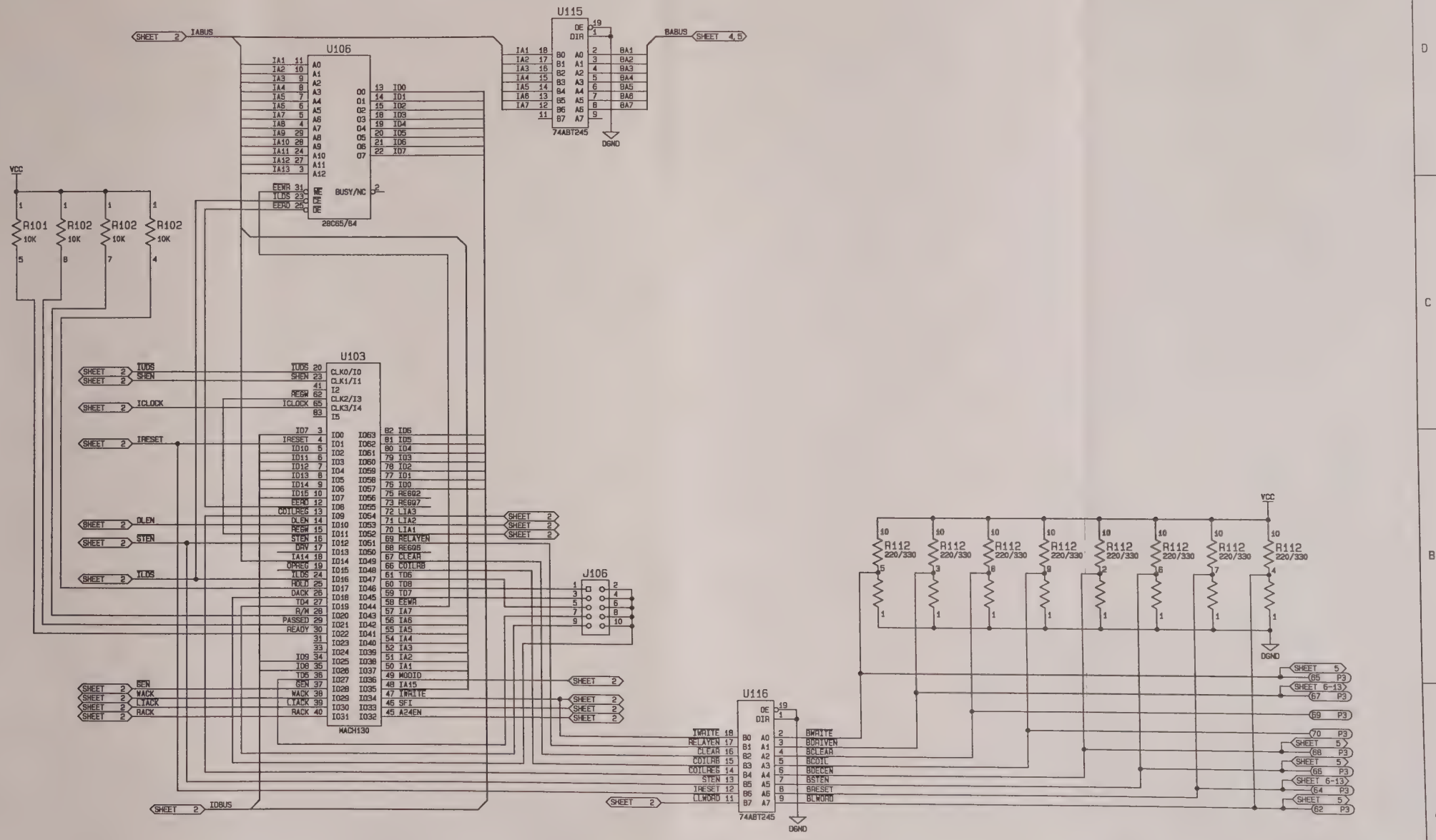
ASCOR INCORPORATED 47790 Westinghouse Drive Fremont, California

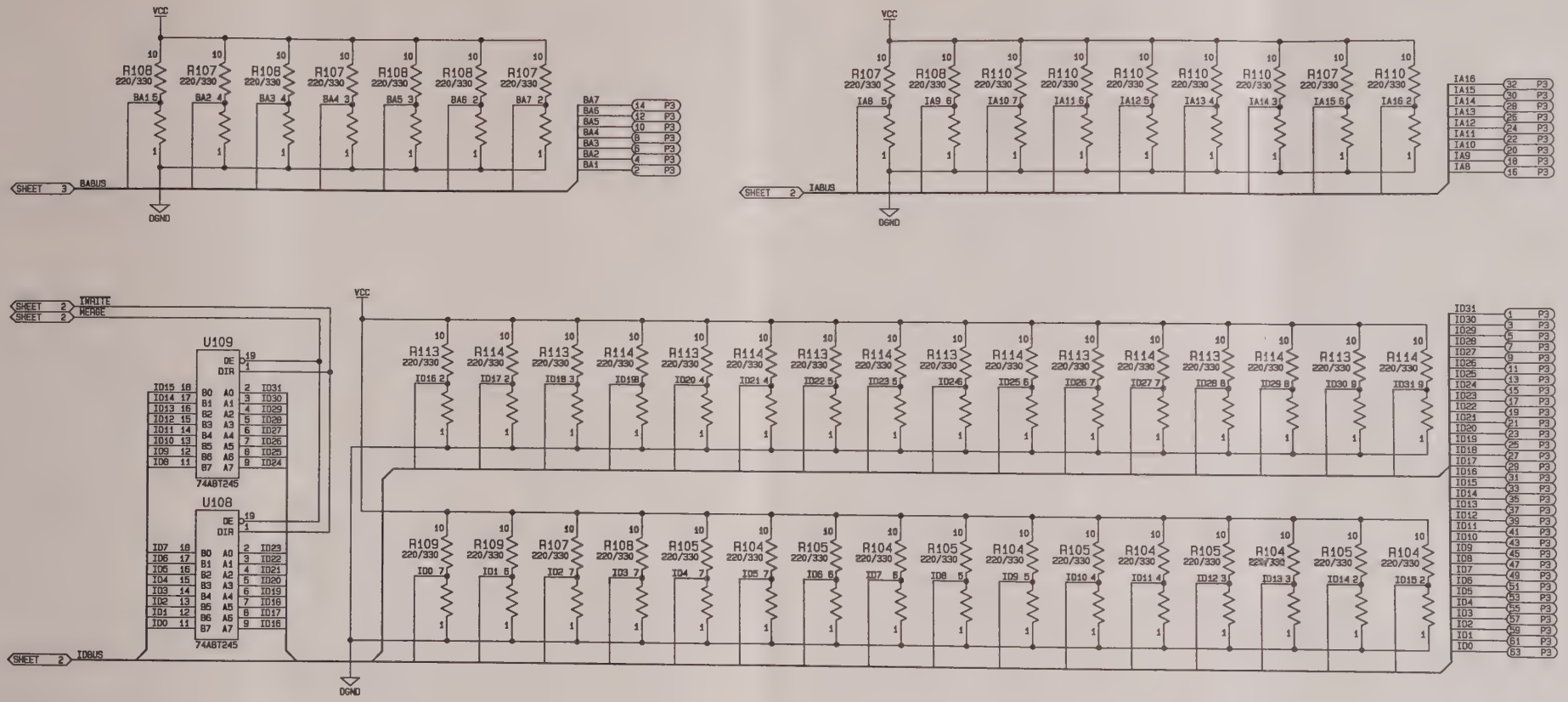
SCHEMATIC
FLEXI-SWITCH, MB

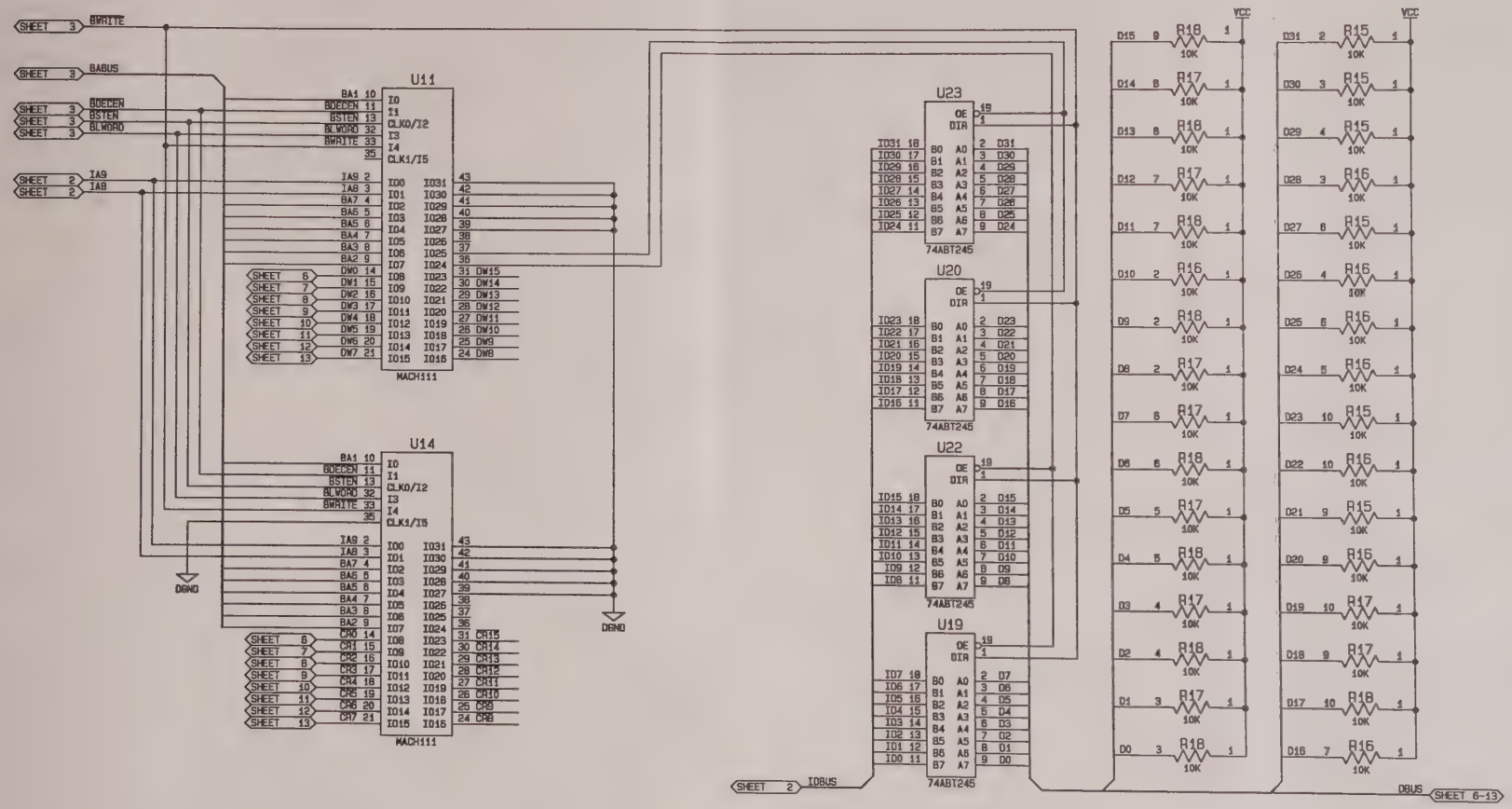
D 0B5C1 SCH85002160 A1

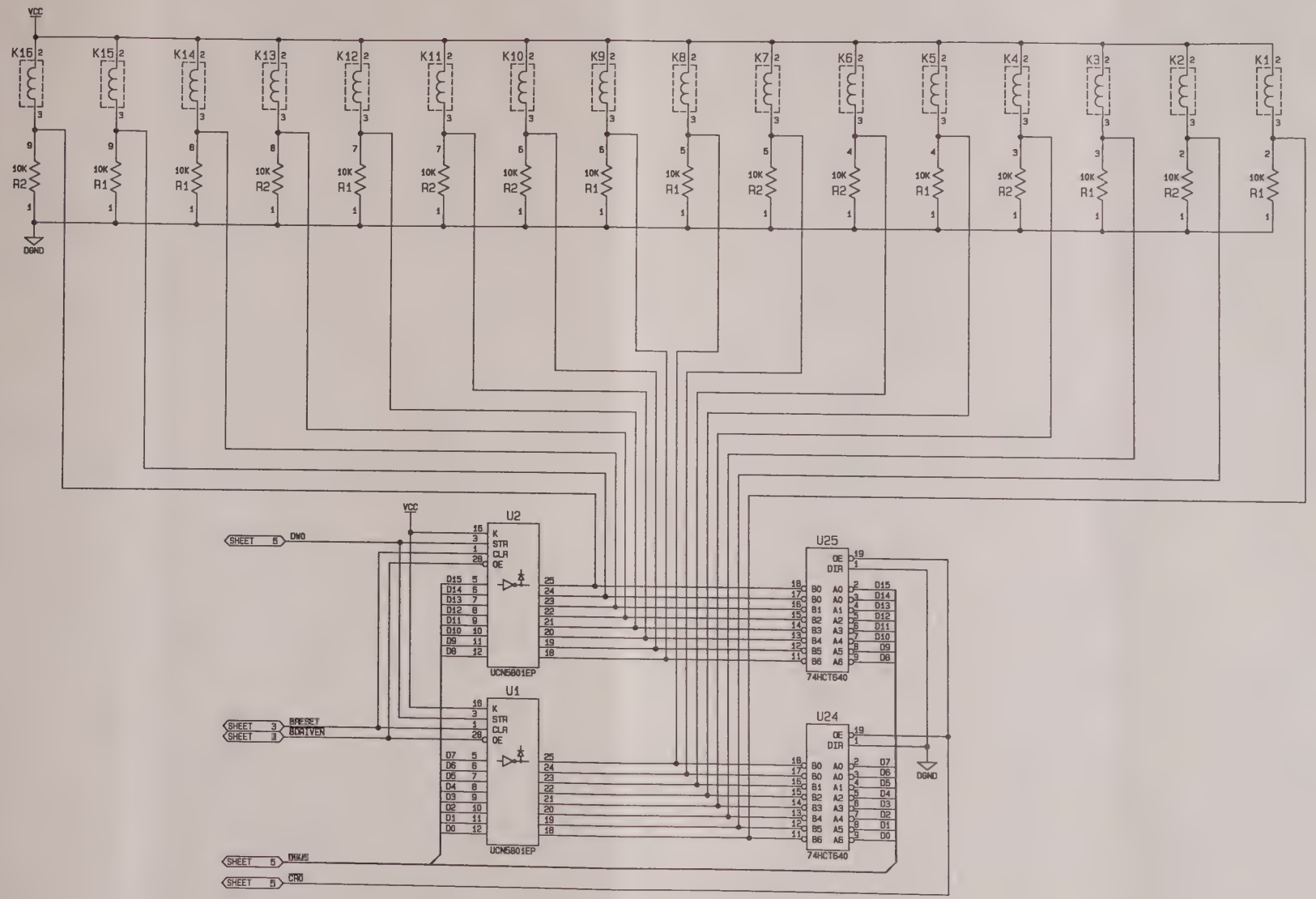
SHEET 1 OF 17

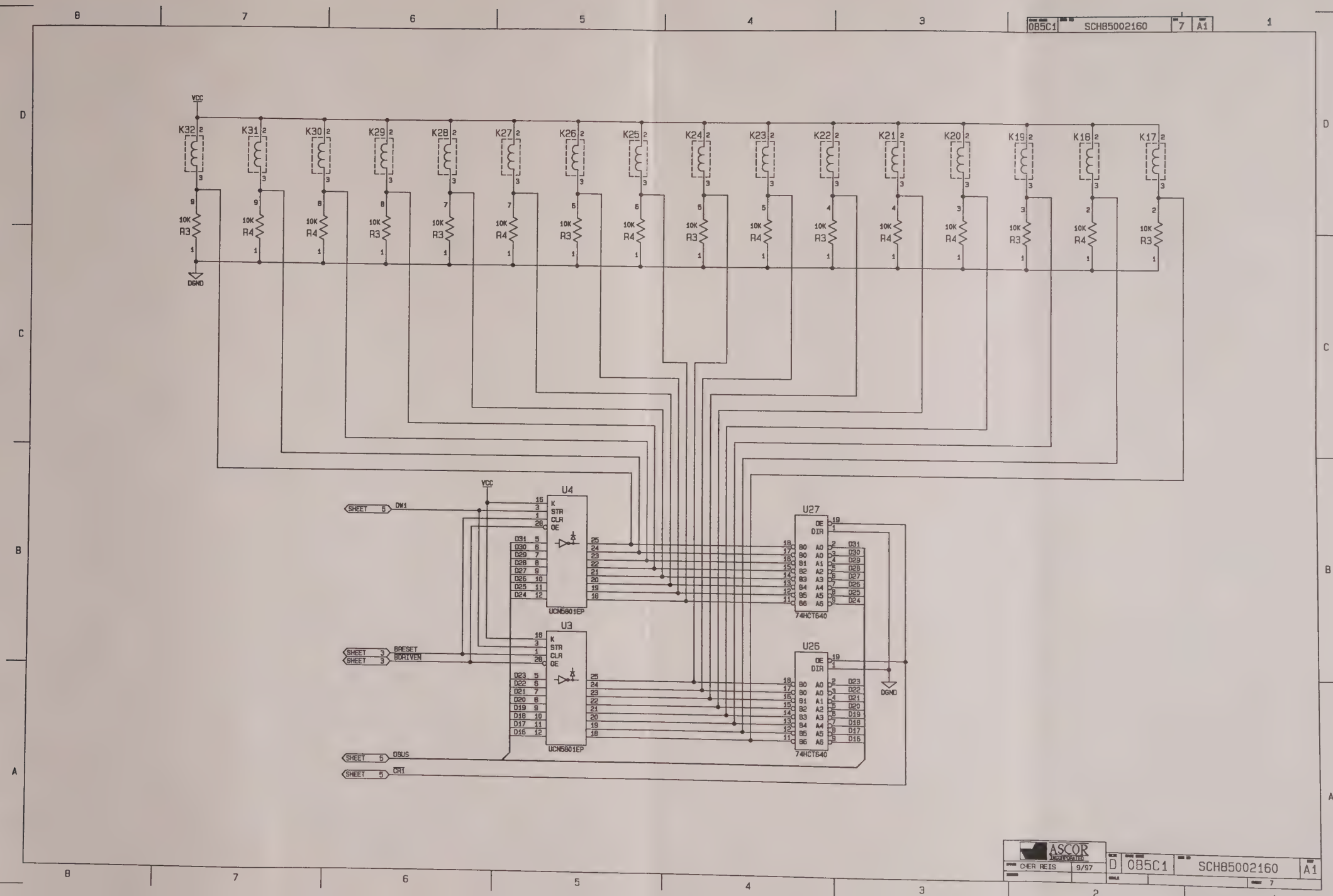

0B5C1 SCH85002160 2 A1
U107
U104
U105
U112
U117
U113
U114
U102
U110
U119
U118
U101
U111
74ALS573
74ALS641A
74ABT245
74HCT123
PALCE26V12
VXIGA
R16 10K
R101 10K
R102 10K
R103 100K
R106 10K
R111 825
C103 1UF
R115 301
J107
J105
D1 MSD
D2 LSD
DRW16
L1
E3
E4
VCC
DGND
IABUS
IDBUS
SHEET 3-5
SHEET 3
SHEET 4
SHEET 3,4
A22 P1
ASCOR
CHER REIS 9/97
D 0B5C1 SCH85002160 A1

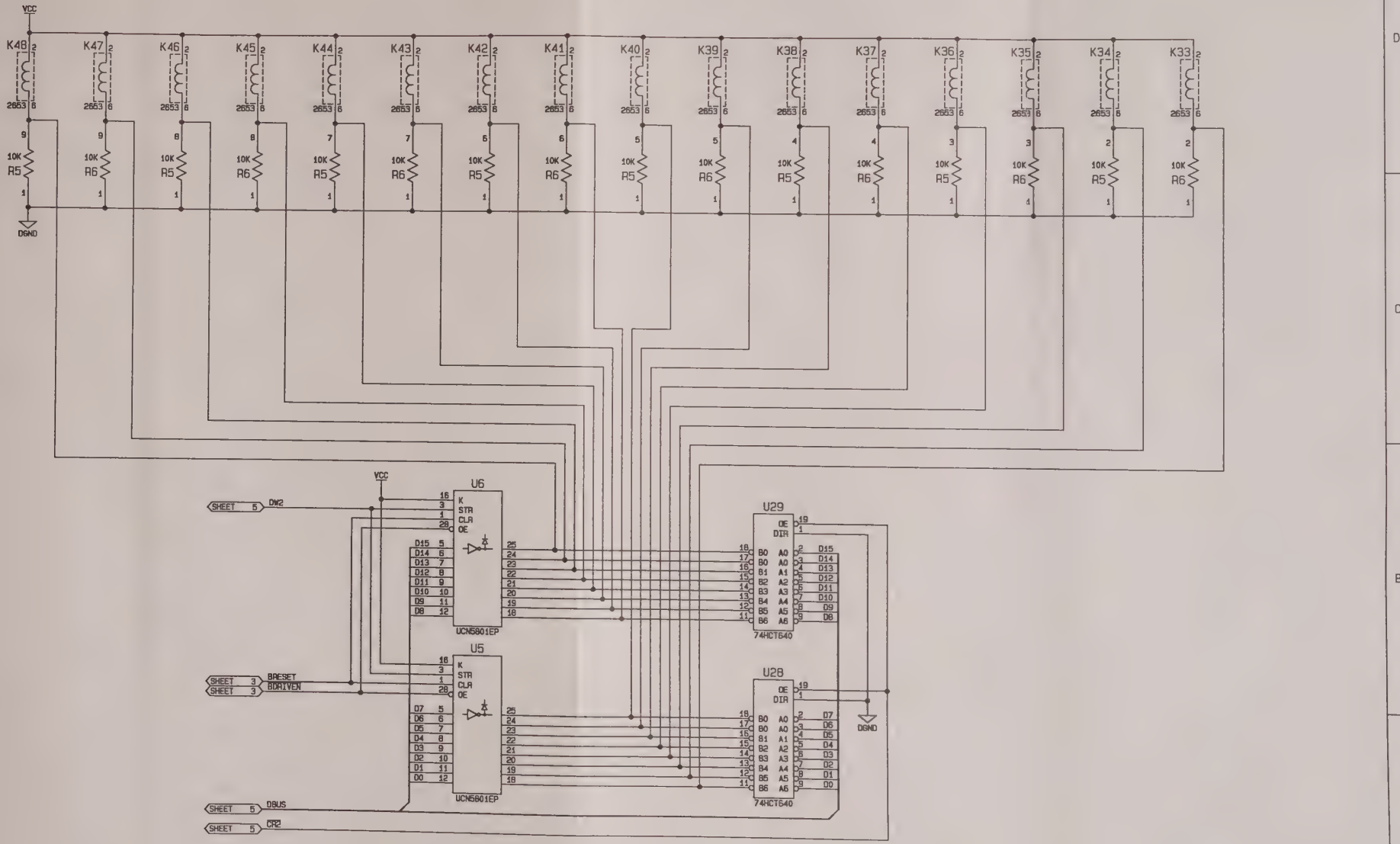

0B5C1 SCH85002160 3 A1
U115
74ABT245
U106
28C65/84
U103
MACH130
U116
74ABT245
J106
R101 10K
R102 10K
R102 10K
R102 10K
R112 220/330
VCC
DGND
IABUS
BABUS
IDBUS
SHEET 2
SHEET 4,5
SHEET 5
SHEET 6-13
IDDS
SHEN
ICLOCK
IRESET
DLEN
STEN
YLDS
BEN
WACK
LTACK
RACK
IWRITE
RELAYEN
CLEAR
COILRB
COILREG
STEN
IRESET
LLWORD
BWRITE
BDRIVEN
BCLEAR
BCOIL
BDECEN
BSTEN
BRESET
BLWORD

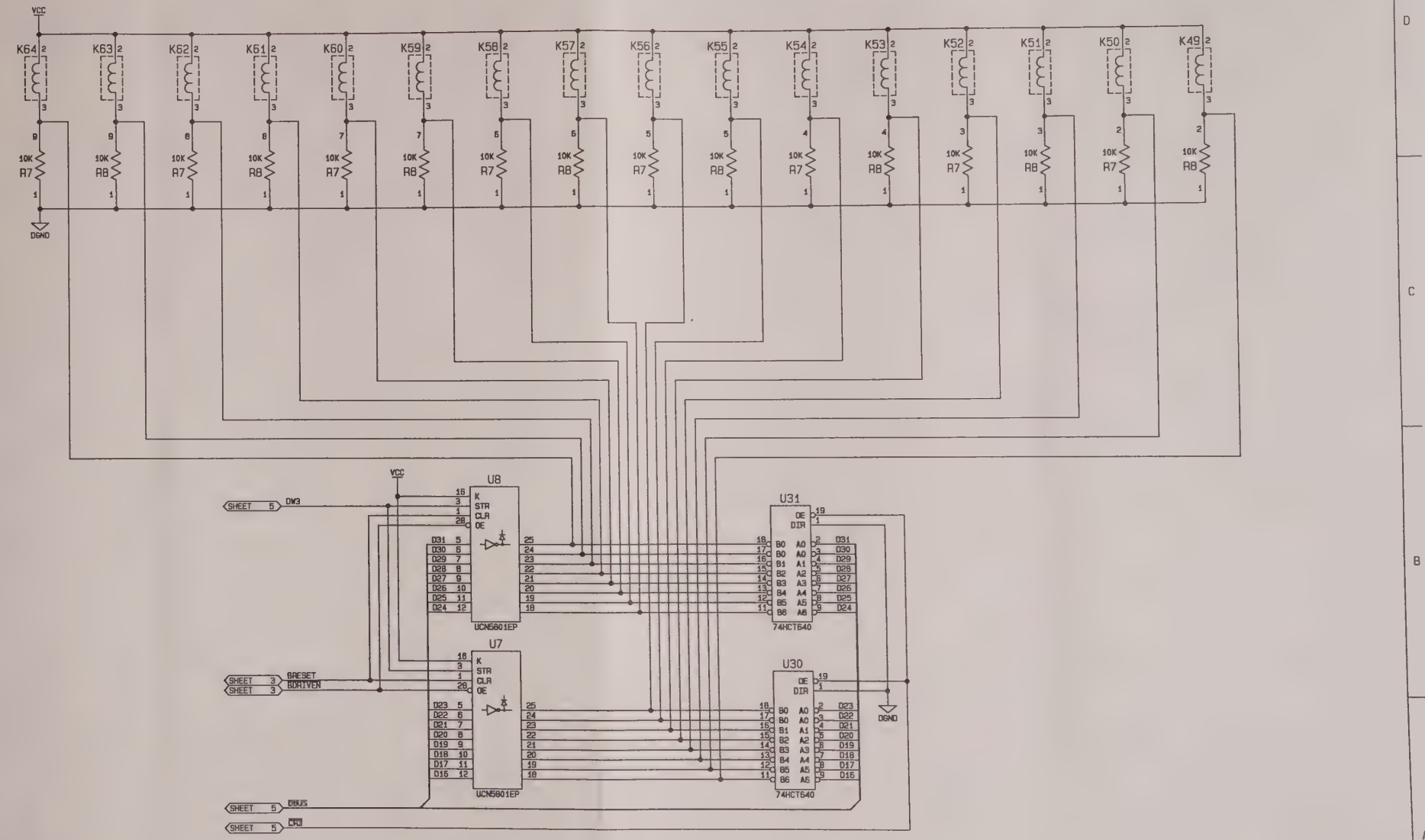

VCC
R108 220/330
R107 220/330
BA1 5
BA2 4
BA3 4
BA4 3
BA5 3
BA6 2
BA7 2
SHEET 3 BABUS
DGND
BA7 14 P3
BA6 12 P3
BA5 10 P3
BA4 8 P3
BA3 6 P3
BA2 4 P3
BA1 2 P3
IA8 5
IA9 6
IA10 7
IA11 6
IA12 5
IA13 4
IA14 3
IA15 6
IA16 2
SHEET 2 IABUS
IA16 32 P3
IA15 30 P3
IA14 28 P3
IA13 26 P3
IA12 24 P3
IA11 22 P3
IA10 20 P3
IA9 18 P3
IA8 16 P3
SHEET 2 IWRITE
SHEET 2 MERGE
U109
U108
74ABT245
OE 19
DIR 1
ID15 18
ID14 17
ID13 16
ID12 15
ID11 14
ID10 13
ID9 12
ID8 11
ID7 18
ID6 17
ID5 16
ID4 15
ID3 14
ID2 13
ID1 12
ID0 11
SHEET 2 IDBUS
R113 220/330
R114 220/330
R109 220/330
R104 220/330
R105 220/330
ID31 1 P3
ID30 3 P3
ID29 5 P3
ID28 7 P3
ID27 9 P3
ID26 11 P3
ID25 13 P3
ID24 15 P3
ID23 17 P3
ID22 19 P3
ID21 21 P3
ID20 23 P3
ID19 25 P3
ID18 27 P3
ID17 29 P3
ID16 31 P3
ID15 33 P3
ID14 35 P3
ID13 37 P3
ID12 39 P3
ID11 41 P3
ID10 43 P3
ID9 45 P3
ID8 47 P3
ID7 49 P3
ID6 51 P3
ID5 53 P3
ID4 55 P3
ID3 57 P3
ID2 59 P3
ID1 61 P3
ID0 63 P3

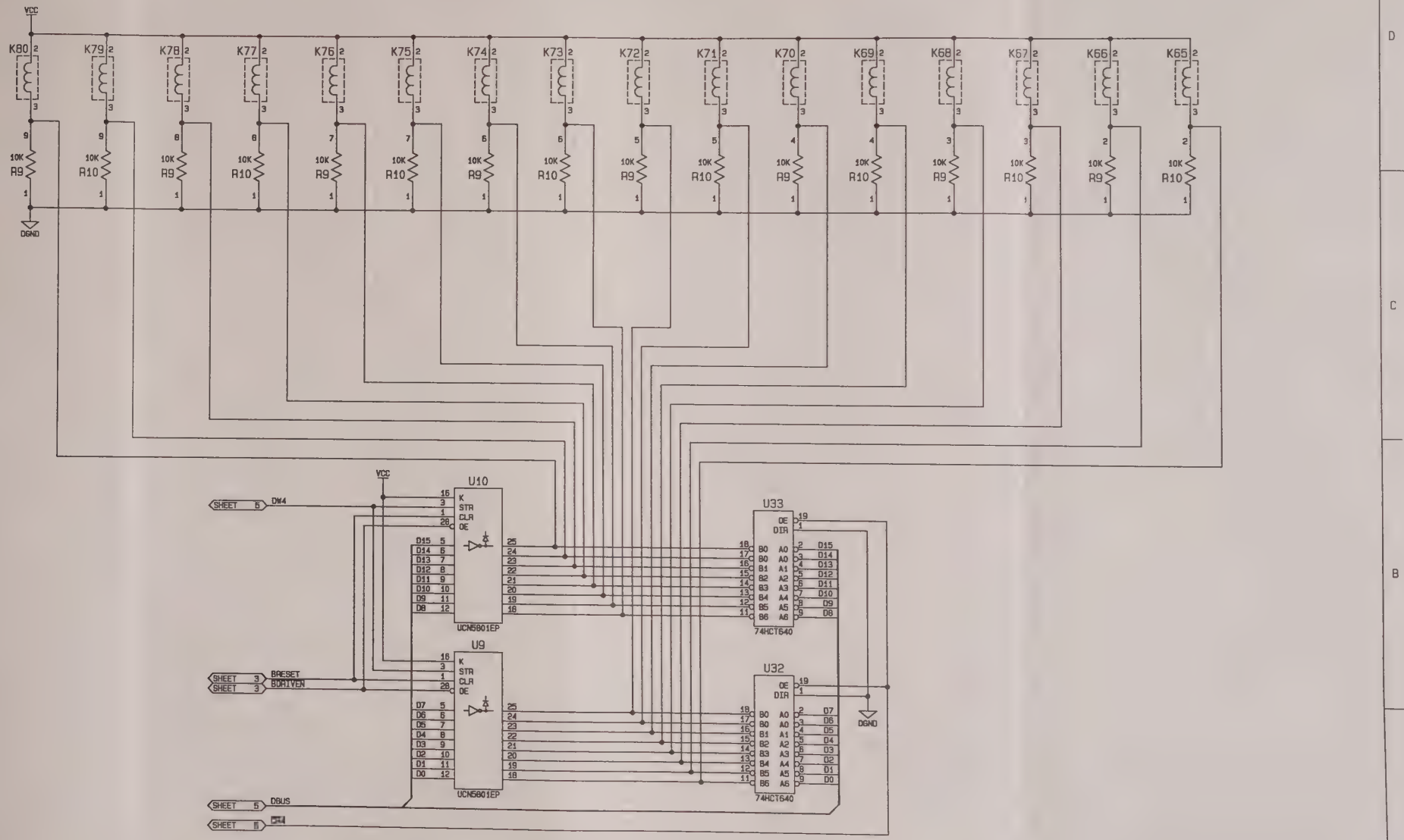

SHEET 3 BWRITE
SHEET 3 BABUS
SHEET 3 BDECEN
SHEET 3 BSTEN
SHEET 3 BLWORD
SHEET 2 IA9
SHEET 2 IA8
U11
U14
MACH111
DGND
SHEET 6 DW1
SHEET 7 DW2
SHEET 8 DW3
SHEET 9 DW4
SHEET 10 DW5
SHEET 11 DW6
SHEET 12 DW7
SHEET 13
SHEET 6 CR1
SHEET 7 CR2
SHEET 8 CR3
SHEET 9 CR4
SHEET 10 CR5
SHEET 11 CR6
SHEET 12 CR7
SHEET 13
U23
U20
U22
U19
74ABT245
SHEET 2 IDBUS
VCC
R18
R17
R16
R15
10K
DBUS
SHEET 6-13

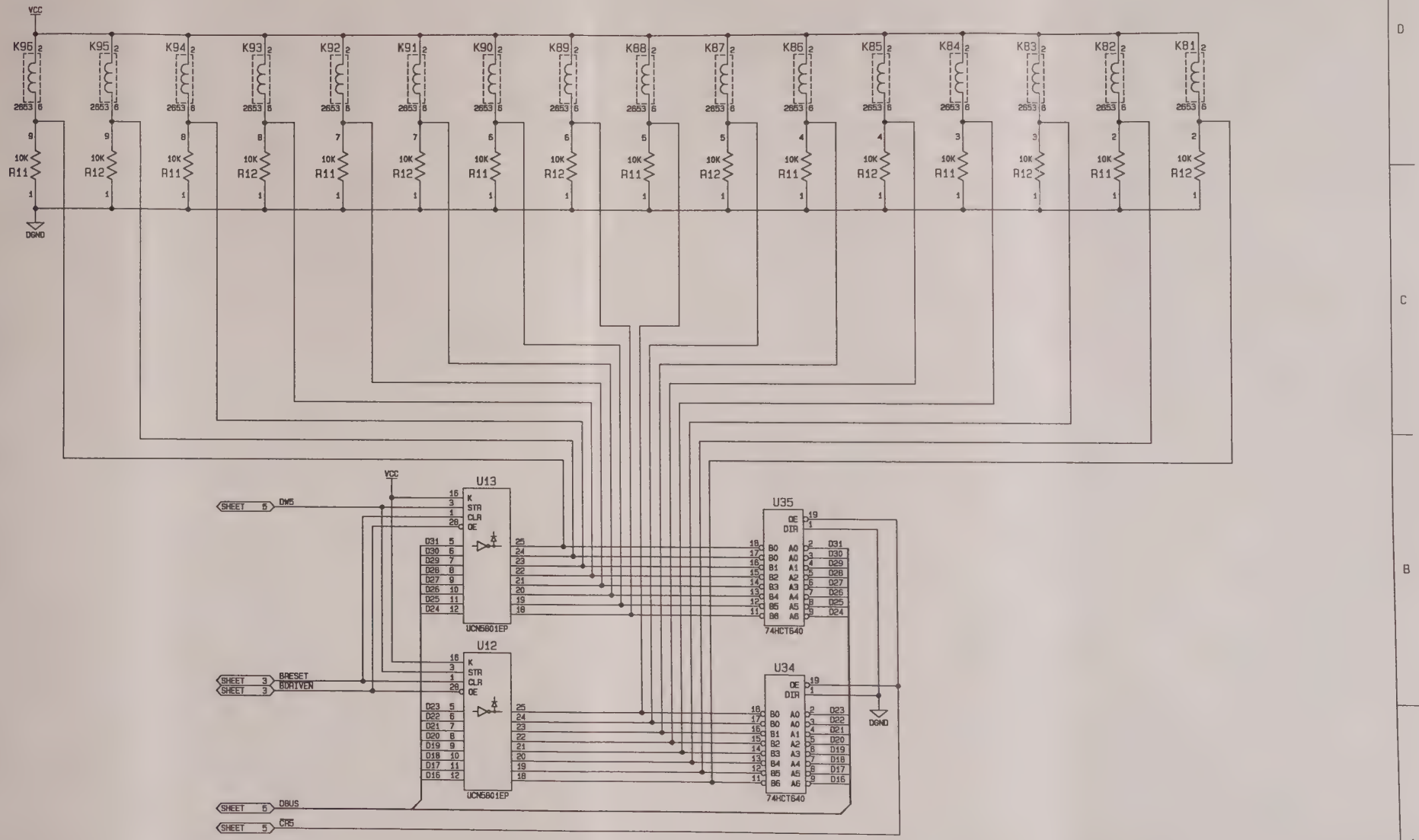

VCC
K16
K15
K14
K13
K12
K11
K10
K9
K8
K7
K6
K5
K4
K3
K2
K1
10K
R2
R1
DGND
U2
U1
K
STR
CLR
OE
UCN5801EP
U25
U24
OE
DIR
74HCT640
SHEET 5 DWO
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 5 DGWS
SHEET 5 CRO

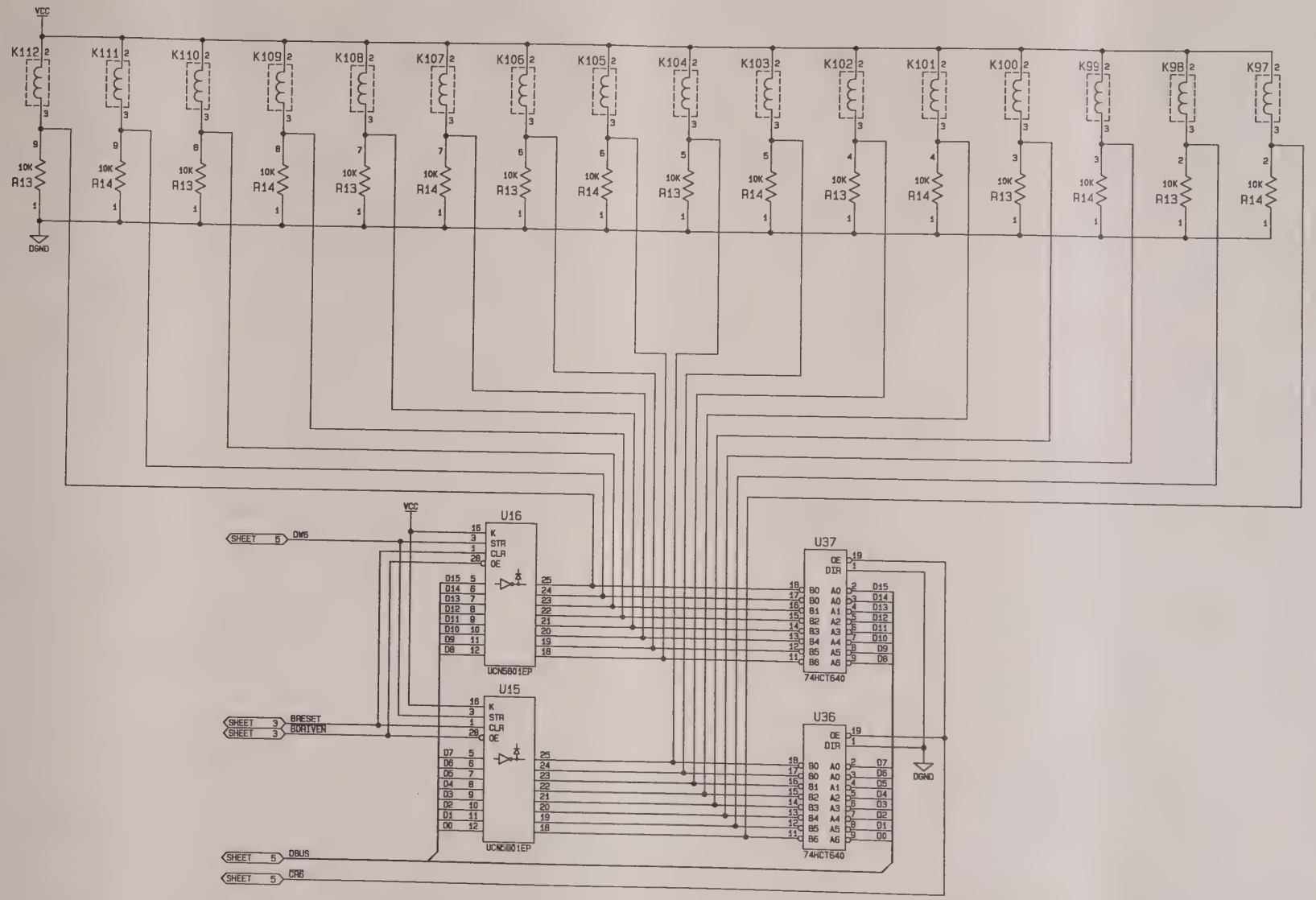

0B5C1
SCH85002160
7
A1
VCC
K32
K31
K30
K29
K28
K27
K26
K25
K24
K23
K22
K21
K20
K19
K18
K17
10K
R3
R4
DGND
U4
U3
UCN5801EP
U27
U26
74HCT640
OE
DIR
K
STR
CLR
SHEET 5 DW1
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 5 DBUS
SHEET 5 CRT
ASCOR
CHER REIS
9/97
D
0B5C1
SCH85002160
A1

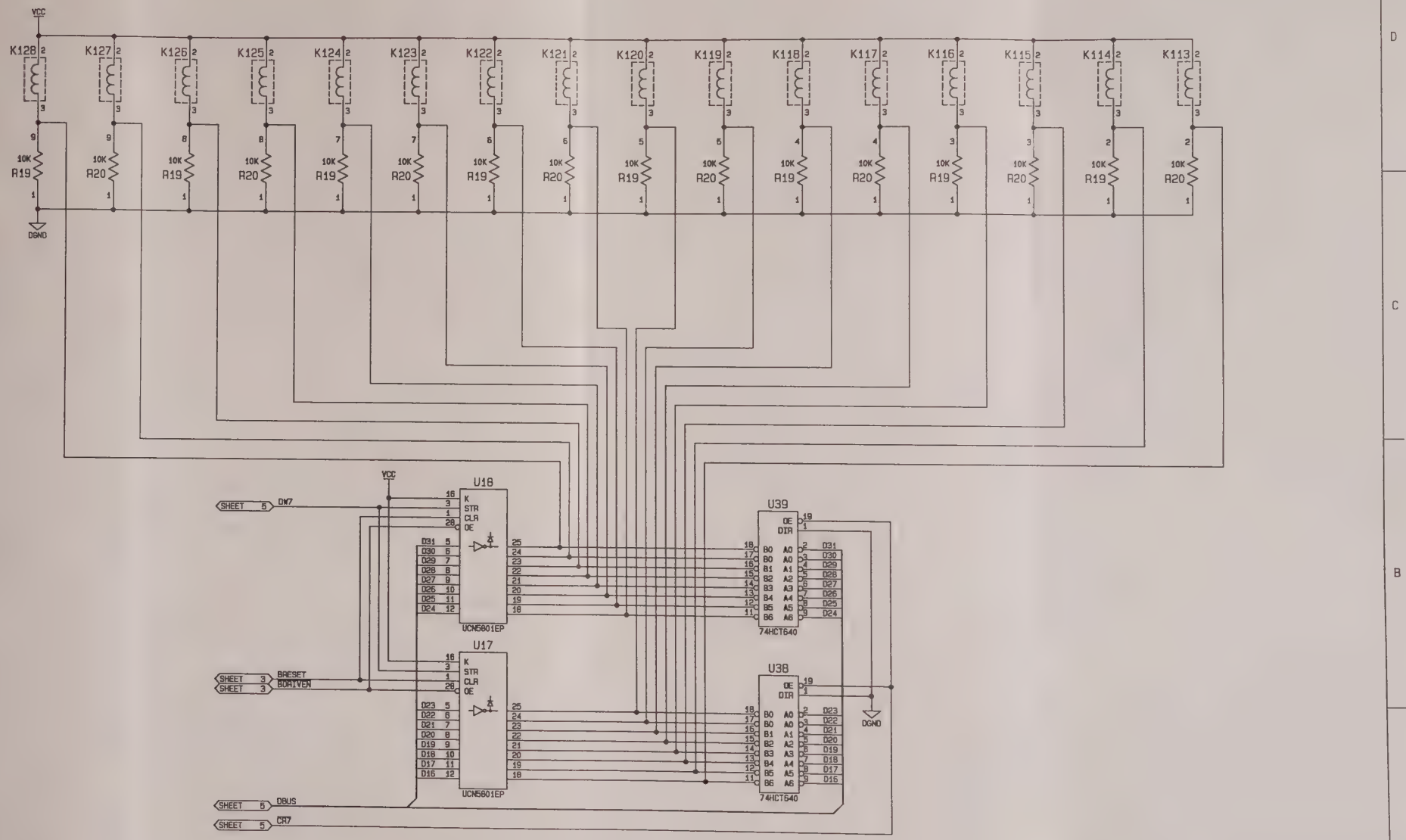

VCC
K48
K47
K46
K45
K44
K43
K42
K41
K40
K39
K38
K37
K36
K35
K34
K33
2653
10K
R5
R6
DGND
U6
U5
U29
U28
K
STR
CLR
OE
DIR
UCN5801EP
74HCT640
SHEET 5 DW2
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 5 DBUS
SHEET 5 CR2

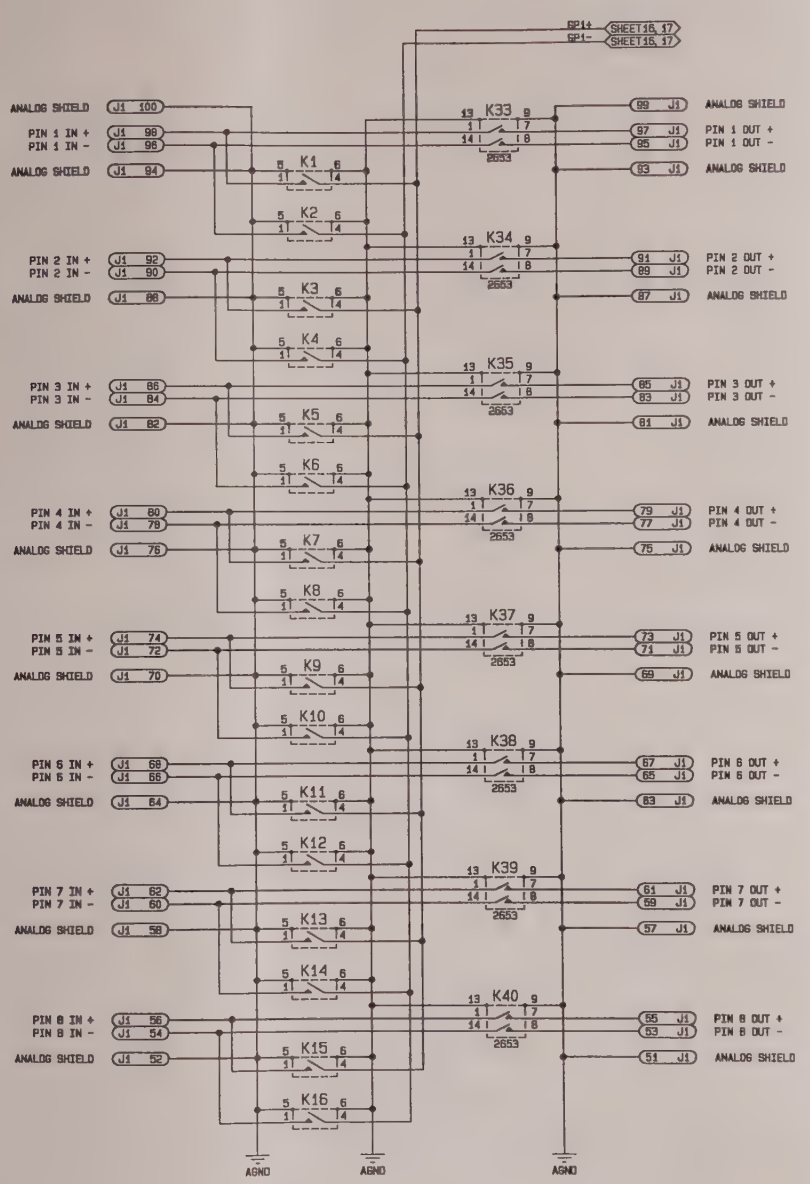

VCC
K64
K63
K62
K61
K60
K59
K58
K57
K56
K55
K54
K53
K52
K51
K50
K49
10K
R7
R8
DGND
U8
U7
U31
U30
K
STR
CLR
OE
UCN5801EP
74HCT640
DIR
SHEET 5 DW3
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 5 DBUS
SHEET 5 CRU

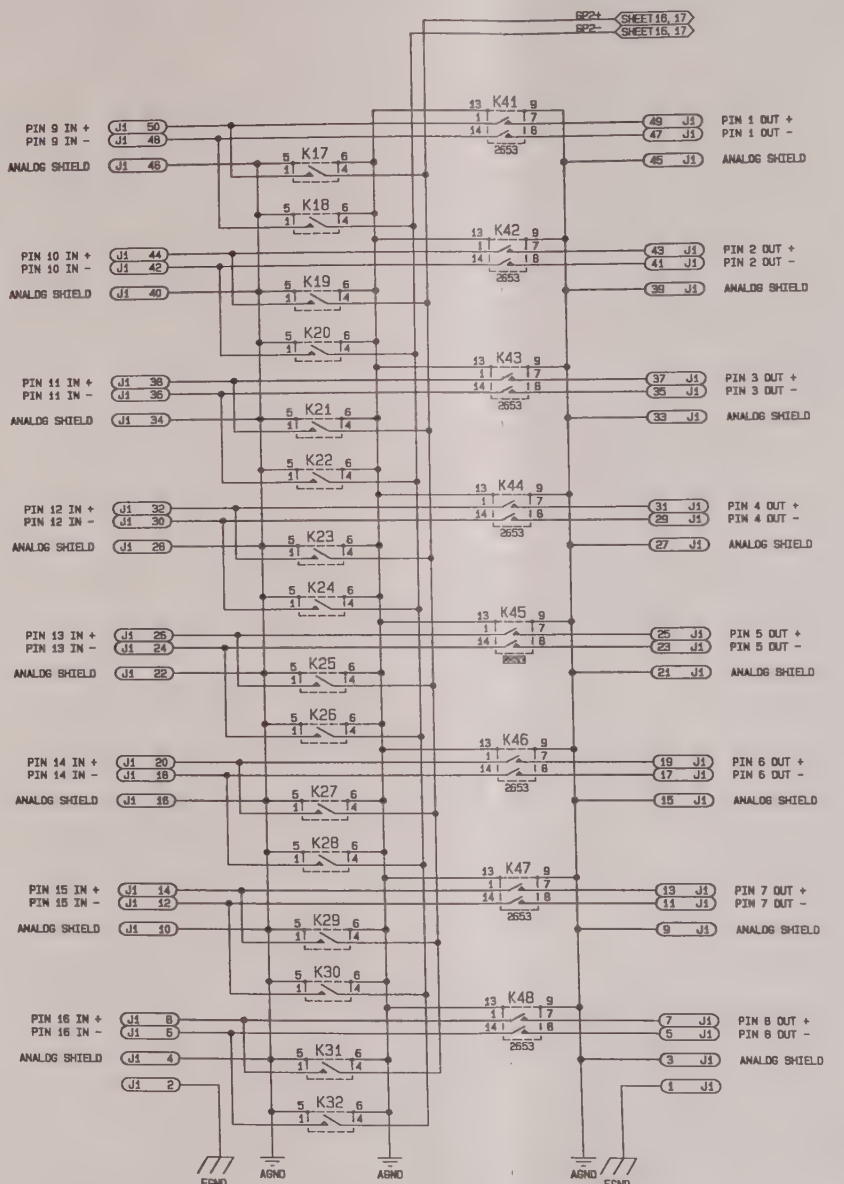

VCC
K80
K79
K78
K77
K76
K75
K74
K73
K72
K71
K70
K69
K68
K67
K66
K65
10K
R9
R10
DGND
U10
U9
U33
U32
K
STR
CLR
OE
DIR
UCN5801EP
74HCT640
SHEET 6 DW4
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 5 DBUS
SHEET 6 DR4


VCC
K96
K95
K94
K93
K92
K91
K90
K89
K88
K87
K86
K85
K84
K83
K82
K81
2653
10K
R11
R12
DGND
U13
U12
U35
U34
K
STR
CLR
OE
UCN5801EP
DIR
74HCT640
SHEET 5 DWS
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 6 DBUS
SHEET 5 CRS

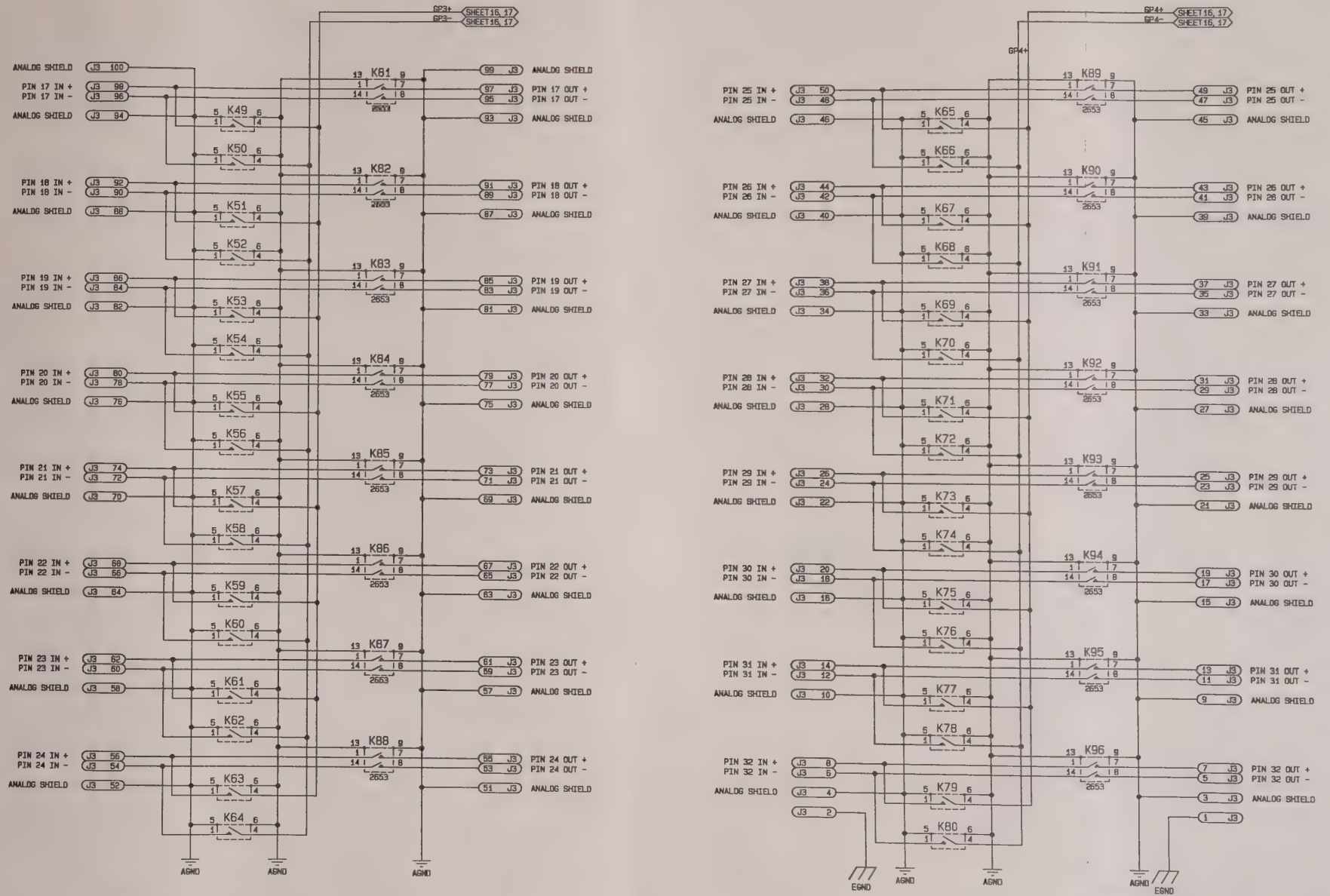

VCC
K112
K111
K110
K109
K108
K107
K106
K105
K104
K103
K102
K101
K100
K99
K98
K97
10K
R13
R14
DGND
U16
U15
U37
U36
K
STR
CLR
OE
DIR
UCN5801EP
74HCT640
SHEET 5 DW6
SHEET 3 BRESET
SHEET 3 BDATVEN
SHEET 5 DBUS
SHEET 5 CR6


VCC
K128
K127
K126
K125
K124
K123
K122
K121
K120
K119
K118
K117
K116
K115
K114
K113
10K
R19
R20
DGND
U18
U17
U39
U38
K
STR
CLR
OE
UCN5801EP
74HCT640
DIR
SHEET 5 DW7
SHEET 3 BRESET
SHEET 3 BDRIVEN
SHEET 5 DBUS
SHEET 5 CR7

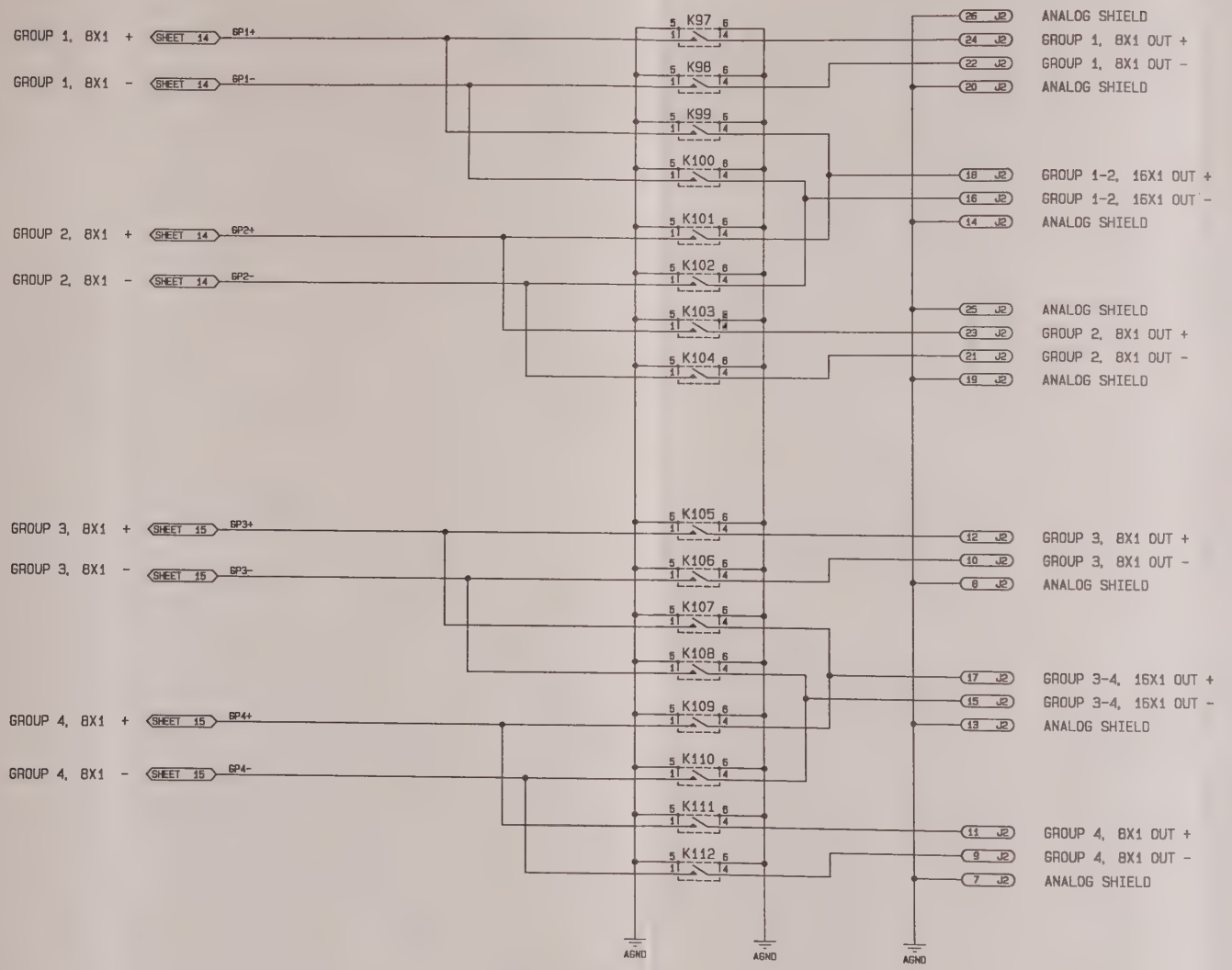

GP1+ SHEET16, 17
GP1- SHEET16, 17
ANALOG SHIELD J1 100
PIN 1 IN + J1 98
PIN 1 IN - J1 96
ANALOG SHIELD J1 94
PIN 2 IN + J1 92
PIN 2 IN - J1 90
ANALOG SHIELD J1 88
PIN 3 IN + J1 86
PIN 3 IN - J1 84
ANALOG SHIELD J1 82
PIN 4 IN + J1 80
PIN 4 IN - J1 78
ANALOG SHIELD J1 76
PIN 5 IN + J1 74
PIN 5 IN - J1 72
ANALOG SHIELD J1 70
PIN 6 IN + J1 68
PIN 6 IN - J1 66
ANALOG SHIELD J1 64
PIN 7 IN + J1 62
PIN 7 IN - J1 60
ANALOG SHIELD J1 58
PIN 8 IN + J1 56
PIN 8 IN - J1 54
ANALOG SHIELD J1 52
K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16
K33 K34 K35 K36 K37 K38 K39 K40
2653
99 J1 ANALOG SHIELD
97 J1 PIN 1 OUT +
95 J1 PIN 1 OUT -
93 J1 ANALOG SHIELD
91 J1 PIN 2 OUT +
89 J1 PIN 2 OUT -
87 J1 ANALOG SHIELD
85 J1 PIN 3 OUT +
83 J1 PIN 3 OUT -
81 J1 ANALOG SHIELD
79 J1 PIN 4 OUT +
77 J1 PIN 4 OUT -
75 J1 ANALOG SHIELD
73 J1 PIN 5 OUT +
71 J1 PIN 5 OUT -
69 J1 ANALOG SHIELD
67 J1 PIN 6 OUT +
65 J1 PIN 6 OUT -
63 J1 ANALOG SHIELD
61 J1 PIN 7 OUT +
59 J1 PIN 7 OUT -
57 J1 ANALOG SHIELD
55 J1 PIN 8 OUT +
53 J1 PIN 8 OUT -
51 J1 ANALOG SHIELD
AGND AGND AGND

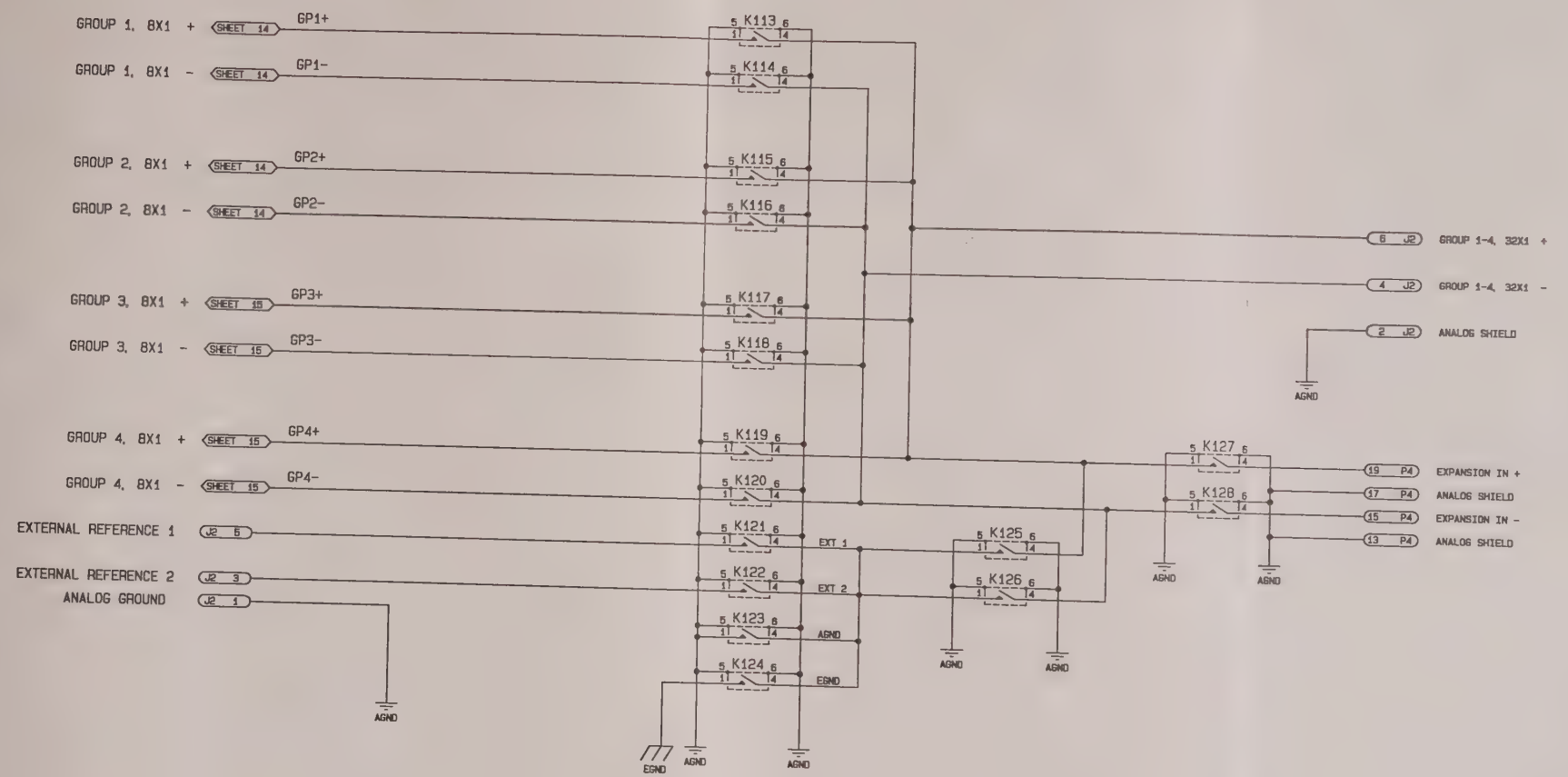

GP2+ SHEET16, 17
GP2- SHEET16, 17
PIN 9 IN + J1 50
PIN 9 IN - J1 48
ANALOG SHIELD J1 46
PIN 10 IN + J1 44
PIN 10 IN - J1 42
ANALOG SHIELD J1 40
PIN 11 IN + J1 38
PIN 11 IN - J1 36
ANALOG SHIELD J1 34
PIN 12 IN + J1 32
PIN 12 IN - J1 30
ANALOG SHIELD J1 28
PIN 13 IN + J1 26
PIN 13 IN - J1 24
ANALOG SHIELD J1 22
PIN 14 IN + J1 20
PIN 14 IN - J1 18
ANALOG SHIELD J1 16
PIN 15 IN + J1 14
PIN 15 IN - J1 12
ANALOG SHIELD J1 10
PIN 16 IN + J1 8
PIN 16 IN - J1 6
ANALOG SHIELD J1 4
J1 2
K17 K18 K19 K20 K21 K22 K23 K24 K25 K26 K27 K28 K29 K30 K31 K32
K41 K42 K43 K44 K45 K46 K47 K48
2653
49 J1 PIN 1 OUT +
47 J1 PIN 1 OUT -
45 J1 ANALOG SHIELD
43 J1 PIN 2 OUT +
41 J1 PIN 2 OUT -
39 J1 ANALOG SHIELD
37 J1 PIN 3 OUT +
35 J1 PIN 3 OUT -
33 J1 ANALOG SHIELD
31 J1 PIN 4 OUT +
29 J1 PIN 4 OUT -
27 J1 ANALOG SHIELD
25 J1 PIN 5 OUT +
23 J1 PIN 5 OUT -
21 J1 ANALOG SHIELD
19 J1 PIN 6 OUT +
17 J1 PIN 6 OUT -
15 J1 ANALOG SHIELD
13 J1 PIN 7 OUT +
11 J1 PIN 7 OUT -
9 J1 ANALOG SHIELD
7 J1 PIN 8 OUT +
5 J1 PIN 8 OUT -
3 J1 ANALOG SHIELD
1 J1
EGND AGND AGND AGND EGND

ASCOR INCORPORATED
CHER REIS 9/97
D 0B5C1 SCH85002160 A1
14


GP3+ SHEET16, 17
GP3- SHEET16, 17
ANALOG SHIELD J3 100
PIN 17 IN + J3 98
PIN 17 IN - J3 96
ANALOG SHIELD J3 94
PIN 18 IN + J3 92
PIN 18 IN - J3 90
ANALOG SHIELD J3 88
PIN 19 IN + J3 86
PIN 19 IN - J3 84
ANALOG SHIELD J3 82
PIN 20 IN + J3 80
PIN 20 IN - J3 78
ANALOG SHIELD J3 76
PIN 21 IN + J3 74
PIN 21 IN - J3 72
ANALOG SHIELD J3 70
PIN 22 IN + J3 68
PIN 22 IN - J3 66
ANALOG SHIELD J3 64
PIN 23 IN + J3 62
PIN 23 IN - J3 60
ANALOG SHIELD J3 58
PIN 24 IN + J3 56
PIN 24 IN - J3 54
ANALOG SHIELD J3 52
K49 K50 K51 K52 K53 K54 K55 K56 K57 K58 K59 K60 K61 K62 K63 K64
K81 K82 K83 K84 K85 K86 K87 K88
2653
99 J3 ANALOG SHIELD
97 J3 PIN 17 OUT +
95 J3 PIN 17 OUT -
93 J3 ANALOG SHIELD
91 J3 PIN 18 OUT +
89 J3 PIN 18 OUT -
87 J3 ANALOG SHIELD
85 J3 PIN 19 OUT +
83 J3 PIN 19 OUT -
81 J3 ANALOG SHIELD
79 J3 PIN 20 OUT +
77 J3 PIN 20 OUT -
75 J3 ANALOG SHIELD
73 J3 PIN 21 OUT +
71 J3 PIN 21 OUT -
69 J3 ANALOG SHIELD
67 J3 PIN 22 OUT +
65 J3 PIN 22 OUT -
63 J3 ANALOG SHIELD
61 J3 PIN 23 OUT +
59 J3 PIN 23 OUT -
57 J3 ANALOG SHIELD
55 J3 PIN 24 OUT +
53 J3 PIN 24 OUT -
51 J3 ANALOG SHIELD
AGND AGND AGND
GP4+ SHEET16, 17
GP4- SHEET16, 17
PIN 25 IN + J3 50
PIN 25 IN - J3 48
ANALOG SHIELD J3 46
PIN 26 IN + J3 44
PIN 26 IN - J3 42
ANALOG SHIELD J3 40
PIN 27 IN + J3 38
PIN 27 IN - J3 36
ANALOG SHIELD J3 34
PIN 28 IN + J3 32
PIN 28 IN - J3 30
ANALOG SHIELD J3 28
PIN 29 IN + J3 26
PIN 29 IN - J3 24
ANALOG SHIELD J3 22
PIN 30 IN + J3 20
PIN 30 IN - J3 18
ANALOG SHIELD J3 16
PIN 31 IN + J3 14
PIN 31 IN - J3 12
ANALOG SHIELD J3 10
PIN 32 IN + J3 8
PIN 32 IN - J3 6
ANALOG SHIELD J3 4
J3 2
K65 K66 K67 K68 K69 K70 K71 K72 K73 K74 K75 K76 K77 K78 K79 K80
K89 K90 K91 K92 K93 K94 K95 K96
2653
49 J3 PIN 25 OUT +
47 J3 PIN 25 OUT -
45 J3 ANALOG SHIELD
43 J3 PIN 26 OUT +
41 J3 PIN 26 OUT -
39 J3 ANALOG SHIELD
37 J3 PIN 27 OUT +
35 J3 PIN 27 OUT -
33 J3 ANALOG SHIELD
31 J3 PIN 28 OUT +
29 J3 PIN 28 OUT -
27 J3 ANALOG SHIELD
25 J3 PIN 29 OUT +
23 J3 PIN 29 OUT -
21 J3 ANALOG SHIELD
19 J3 PIN 30 OUT +
17 J3 PIN 30 OUT -
15 J3 ANALOG SHIELD
13 J3 PIN 31 OUT +
11 J3 PIN 31 OUT -
9 J3 ANALOG SHIELD
7 J3 PIN 32 OUT +
5 J3 PIN 32 OUT -
3 J3 ANALOG SHIELD
1 J3
EGND AGND AGND
AGND EGND

ASCOR INCORPORATED | CHER REIS | 9/97


GROUP 1, 8X1 +
GROUP 1, 8X1 -
GROUP 2, 8X1 +
GROUP 2, 8X1 -
GROUP 3, 8X1 +
GROUP 3, 8X1 -
GROUP 4, 8X1 +
GROUP 4, 8X1 -
SHEET 14 GP1+
SHEET 14 GP1-
SHEET 14 GP2+
SHEET 14 GP2-
SHEET 15 GP3+
SHEET 15 GP3-
SHEET 15 GP4+
SHEET 15 GP4-
K97
K98
K99
K100
K101
K102
K103
K104
K105
K106
K107
K108
K109
K110
K111
K112
AGND
AGND
AGND
26 J2 ANALOG SHIELD
24 J2 GROUP 1, 8X1 OUT +
22 J2 GROUP 1, 8X1 OUT -
20 J2 ANALOG SHIELD
18 J2 GROUP 1-2, 16X1 OUT +
16 J2 GROUP 1-2, 16X1 OUT -
14 J2 ANALOG SHIELD
25 J2 ANALOG SHIELD
23 J2 GROUP 2, 8X1 OUT +
21 J2 GROUP 2, 8X1 OUT -
19 J2 ANALOG SHIELD
12 J2 GROUP 3, 8X1 OUT +
10 J2 GROUP 3, 8X1 OUT -
8 J2 ANALOG SHIELD
17 J2 GROUP 3-4, 16X1 OUT +
15 J2 GROUP 3-4, 16X1 OUT -
13 J2 ANALOG SHIELD
11 J2 GROUP 4, 8X1 OUT +
9 J2 GROUP 4, 8X1 OUT -
7 J2 ANALOG SHIELD


GROUP 1, 8X1 +
SHEET 14
GP1+
GROUP 1, 8X1 -
SHEET 14
GP1-
GROUP 2, 8X1 +
SHEET 14
GP2+
GROUP 2, 8X1 -
SHEET 14
GP2-
GROUP 3, 8X1 +
SHEET 15
GP3+
GROUP 3, 8X1 -
SHEET 15
GP3-
GROUP 4, 8X1 +
SHEET 15
GP4+
GROUP 4, 8X1 -
SHEET 15
GP4-
EXTERNAL REFERENCE 1
J2 5
EXTERNAL REFERENCE 2
J2 3
ANALOG GROUND
J2 1
AGND
K113
K114
K115
K116
K117
K118
K119
K120
K121
K122
K123
K124
K125
K126
K127
K128
EXT 1
EXT 2
AGND
EGND
6 J2 GROUP 1-4, 32X1 +
4 J2 GROUP 1-4, 32X1 -
2 J2 ANALOG SHIELD
19 P4 EXPANSION IN +
17 P4 ANALOG SHIELD
15 P4 EXPANSION IN -
13 P4 ANALOG SHIELD

PN: PL85002170

ASCOR INCORPORATED
A Giga-tronics Company

THE DATA CONTAINED HEREIN,ARE THE EXCLUSIVE PROPERTY OF ASCOR,INC., ISSUED IN STRICT CONFIDENCE AND SHALL NOT,WITHOUT THE PRIOR WRITTEN PERMISSION OF ASCOR,INC., BE REPRODUCED,COPIED OR USED FOR ANY PURPOSE WHATSOEVER,EXCEPT THE MANUFACTURE OF ARTICLES FOR ASCOR,INC.

PARTS LIST

	REV	A											
ENGR.	ECO#	RELEASE											
CHG.	DATE	10/29/97											

APPROVAL SIGNATURES		DATE	TITLE		
CHECKER		11/5/97	PCA,FLEXI SWITCH DB		
ENGINEER		11/97	CAGE CODE	DWG NO.	REV
MANUFACTURE		10/30/97	0B5C1	PL85002170	A
QUALITY		10/30/97	SIZE A	SHEET 1 OF 2	

FORM PL2CVR.XLS 2511032

PL: 85002170
DESC: PCA,FLEXI SWITCH DB

PARTS LIST

REV: A
ECN:

FIND NO.	STOCK NO.	COMPONENT DESCRIPTION	UM	QTY	CAGE NO.	MFG NAME	PART NO.	REFERENCE DESIGNATOR
	PI85002170	PROCESS INSTR.,PCA,FLEXI SW.DB	EA	0	0B5C1	ASCOR	PI85002170	
	PL85002170	PARTS LIST,PCA,FLEXI SWITCH DB	EA	0	0B5C1	ASCOR	PL85002170	
	SCH85002170	SCHEMATIC,PCA,FLEXI SWITCH,DAUGHTER BD.	EA	0	0B5C1	ASCOR	SCH85002170	
0001	75002170	PCA,FLEXI SWITCH DB	EA	1	0B5C1	ASCOR	75002170	
0003	12500190-001	CAP,10 UF,10V,TANTALUM,SMD	EA	2	96095	AVX CORP	TAJC106K010R	C23,C26
0003	50100210	RELAY,DUAL,FORM A,5V,COAXIAL SHIELD	EA	32	71707	COTOCORP	2600-0303	K33-K48,K81-K96
0004	12500010-001	CAP,0.1 UF,50V,20%,CERAMIC,CHIP,SMD	EA	28	31433	KEMET	C1206C104M5UAC/C78	C1-C22,C24,C25,
0004	12500010-001	CAP,0.1 UF,50V,20%,CERAMIC,CHIP,SMD	EA	28	31433	KEMET	C1206C104M5UAC/C78	C27,C28-C30
0005	37000270-001	IC,5801 OCTAL LATCHED DRIVER	EA	16	0CVK3	ALLEGRO	UCN5801EP	U1-U10,U12,U13,
0005	37000270-001	IC,5801 OCTAL LATCHED DRIVER	EA	16	0CVK3	ALLEGRO	UCN5801EP	U15-U18
0006	50100060	RELAY,9002-05	EA	95	V22210	TESTCO	9002-05/COTO	K1-K32,K49-K80,K97-K127
0007	89103040	IC,PAL,16 REG WRITE	EA	1	0B5C1	ASCOR	89103040	U11
0008	89103050	IC,PAL 16 REG READ,COIL	EA	1	0B5C1	ASCOR	89103050	U14
0009	10600030	RESNTWK,10K OHM,1.7W,2%,10P/9R,BUSS,SI	EA	4	91637	DALE	CSC10A-01-103G	R15-R18
0017	30800245-001	IC,74ABT245,OCTAL TRANSCEIVER,SMD	EA	6	1CH66	SIGNETICS	74ABT245D	U19,U20,U22,U23
0017	30800245-001	IC,74ABT245,OCTAL TRANSCEIVER,SMD	EA	6	1CH66	SIGNETICS	74ABT245D	U42,U43
0018	51400080	SWITCH,5 POS,DIP,UP IS ON	EA	1	91506	AUGAT	ADPA05	SW1
0019	10600060	RESNTWK,10K OHM,1.5W,2%,9P/8R,BUSS,SIP	EA	17	91637	DALE	CSC09A-01-103G	R1-R14,R19,R20,R23
0020	56101990	CONN,26 POS RA .050	EA	1	06776	ROBINSON NUG	P50E26P1SR1TG	J2
0025	56103480	CONN,100 PIN RA PLUG.050	EA	2	06776	ROBINSON	P50E100P1SR1TG	J1,J3
0026	MS51957-4	SCREW, 2-56UNC-2A X 5/16,PAN,CROSS-REC,	EA	6	96906	MILSPEC	MS51957-04	J1,J2,J3
0027	NAS671C2	NUT, 2-56,PLAIN,HEX,SML PATTERN,CRES	EA	6	24062	MILSPEC	NAS671C2	J1,J2,J3
0031	30400640-001	IC,74HCT640,OCT BUS TRANSCEIVER,SML OUTL	EA	16	77609	RCA/GE	CD74HCT640D	U24-U39
0032	79300170	LABEL,CAUTION-SEN.ELEC.DEV.6X2, SHIPPING	EA	1	0B5C1	ASCOR	79300170	
0033	56102700	CONN,70 PIN X .050	EA	2	55322	SAMTEC	SFM-135-L1-S-D-LC	P3,P4
0035	SN63WRMAP2	SOLDER,TIN ALLOY:TIN-LEAD ALLOY	EA	0	81348	MILSPEC	SN63WRMAP2	AS REQUIRED
0036	79300360	LABEL,BRADY PRINTER,.75 X .25	EA	1	0FTJ9	W.H.BRADY	THT 1-423-10	
0037	70000010	WIRE,28 AWG,SINGLE,TEF,WIREWRAP,BLUE	FT	0	9X418	OK INDUST	CSW28B1000	AS REQUIRED

Contract No.	
Next Assy	90400750
Used On	MODEL 3000-46
Last Update	1997/10/29

DESIGN ACTIVITY

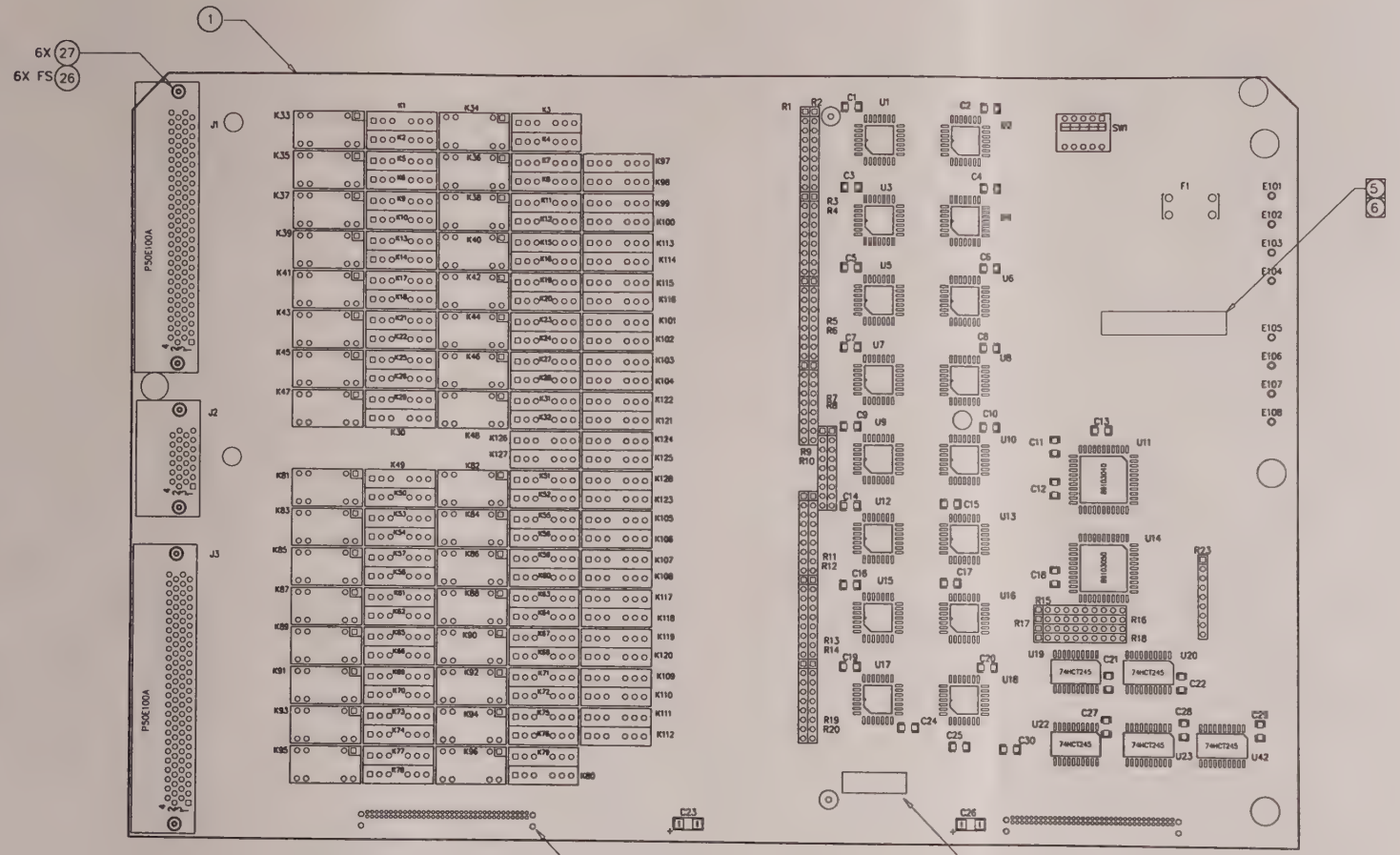
ASCOR INCORPORATED
47790 WESTINGHOUSE DRIVE
FREMONT, CA. 94539

CAGE CODE
0B5C1

CAGE CODE	DWG NO	SH	REV
0B5C1	85002170	1	A

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
A	FORMAL RELEASE		



CAUTION
THIS ASSEMBLY CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

6 MARK SERIAL NUMBER APPROX. NEAR ASCOR LOGO.

5 MARK ASSEMBLY REVISION APPROX. NEAR ASCOR LOGO.

4 TRIM LEADS SOLDER SIDE .040 MAX.

3) SQUARE PIN DENOTES:

PIN 1 OF DIPS,SIPS AND CONNECTORS
EMITTER OF TRANSISTOR
CATHODE OF DIODE
POSITIVE SIDE OF CAPACITORS

2) ASSEMBLE PER MIL-STD-454.

1) INTERPRET DRAWING IN ACCORDANCE WITH DOD-STD-100.

NOTES-UNLESS OTHERWISE SPECIFIED:

9 REWORK FOR 75002170 REV A ONLY, SEE SHEET TWO.

8) DO NOT INSTALL F1.

7) ATTENTION: OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES.

SEE SEPARATE PARTS LIST - PL85002170

ITEM	QTY REQD	CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	REF DES
				PARTS LIST		

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION. DO NOT COPY OR EXTRACT WITHOUT PRIOR WRITTEN PERMISSION OF ASCOR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS DECIMALS ANGLES
.x ±.01 x
.xx ±.005 x
FILE ALL BURRS.
RADIUS ALL EDGES
MATERIAL -----
FINISH -----
DO NOT SCALE DRAWING

CONTRACT NO.		
APPROVALS		DATE
DRAWN	CHER REIS	9/97
CHECKED		
ENGR.		
Q.C.		
APPR.		

NEXT ASSY	USED ON
90400750	

APPLICATION

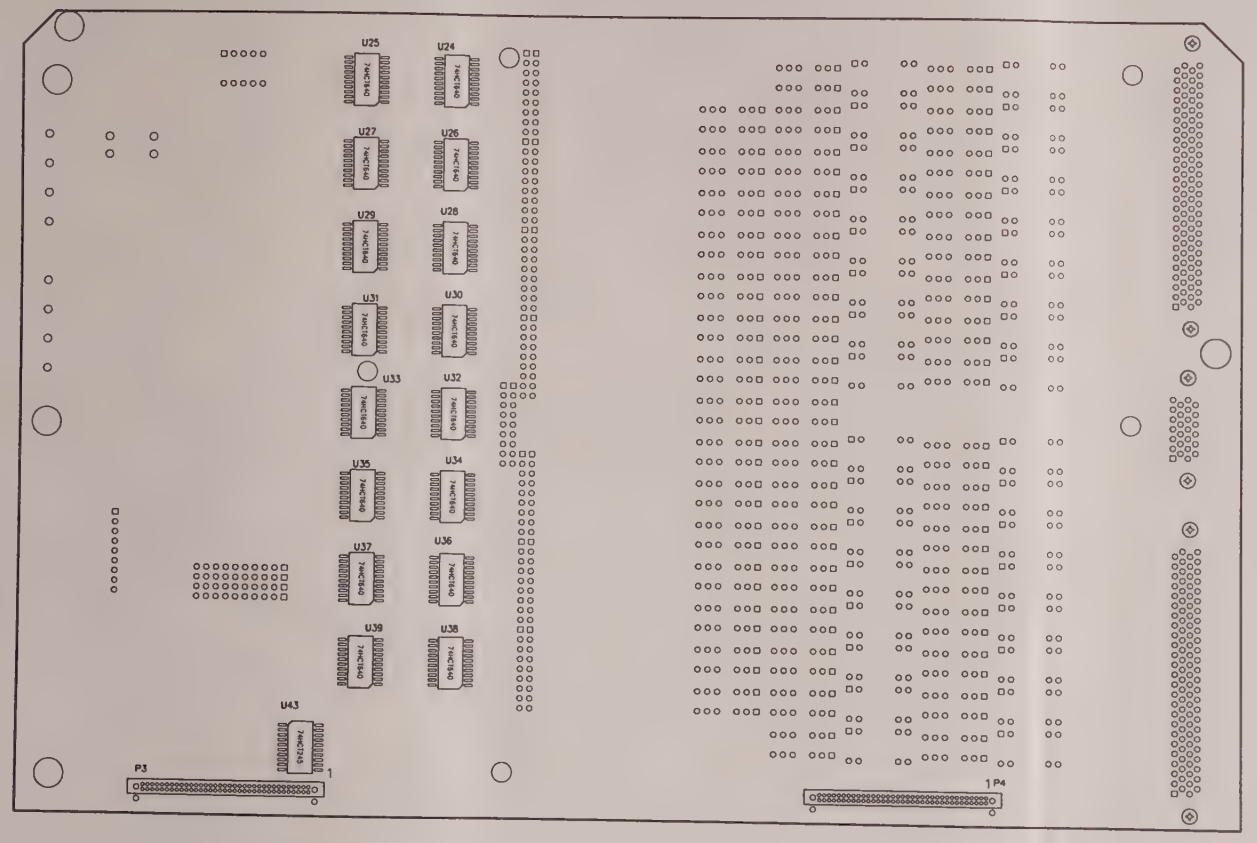
THIRD ANGLE PROJECTION

ASCOR INCORPORATED 47790 Westinghouse Drive Fremont, California

ASSY PCB FLEXI SWITCH, DB

SIZE	CAGE CODE	DWG NO	REV
D	0B5C1	85002170	A

SCALE NONE A2170-1.DWG SHEET 1 OF 2

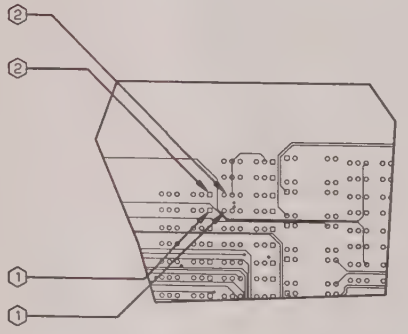


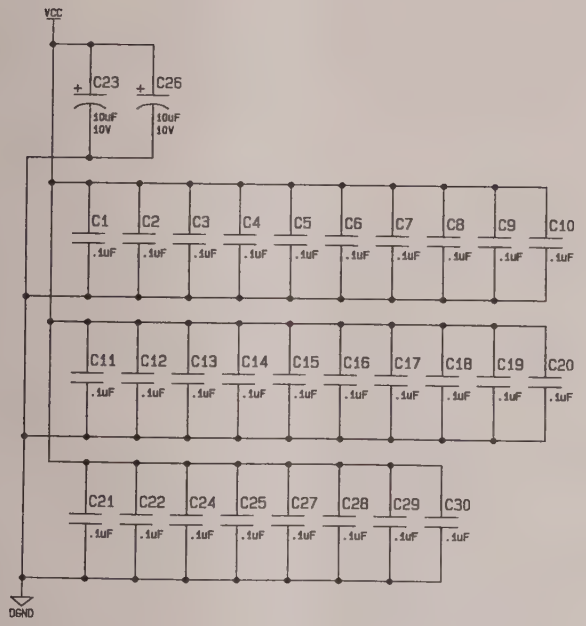
VIEWED FROM BACK SIDE

(9)

REWORK FOR 75002170 REV A ONLY

NO.	DESCRIPTION	FROM	TO	ITEM NO.
1	JUMPER	K8-4	K98-1	37,35
2	JUMPER	K7-4	K97-1	37,35





REV	DESCRIPTION	DATE	APPROVED
A	FORMAL RELEASE		

0B5C1 SCH85002170 1 A

B5002170

THIRD ANGLE PROJECTION

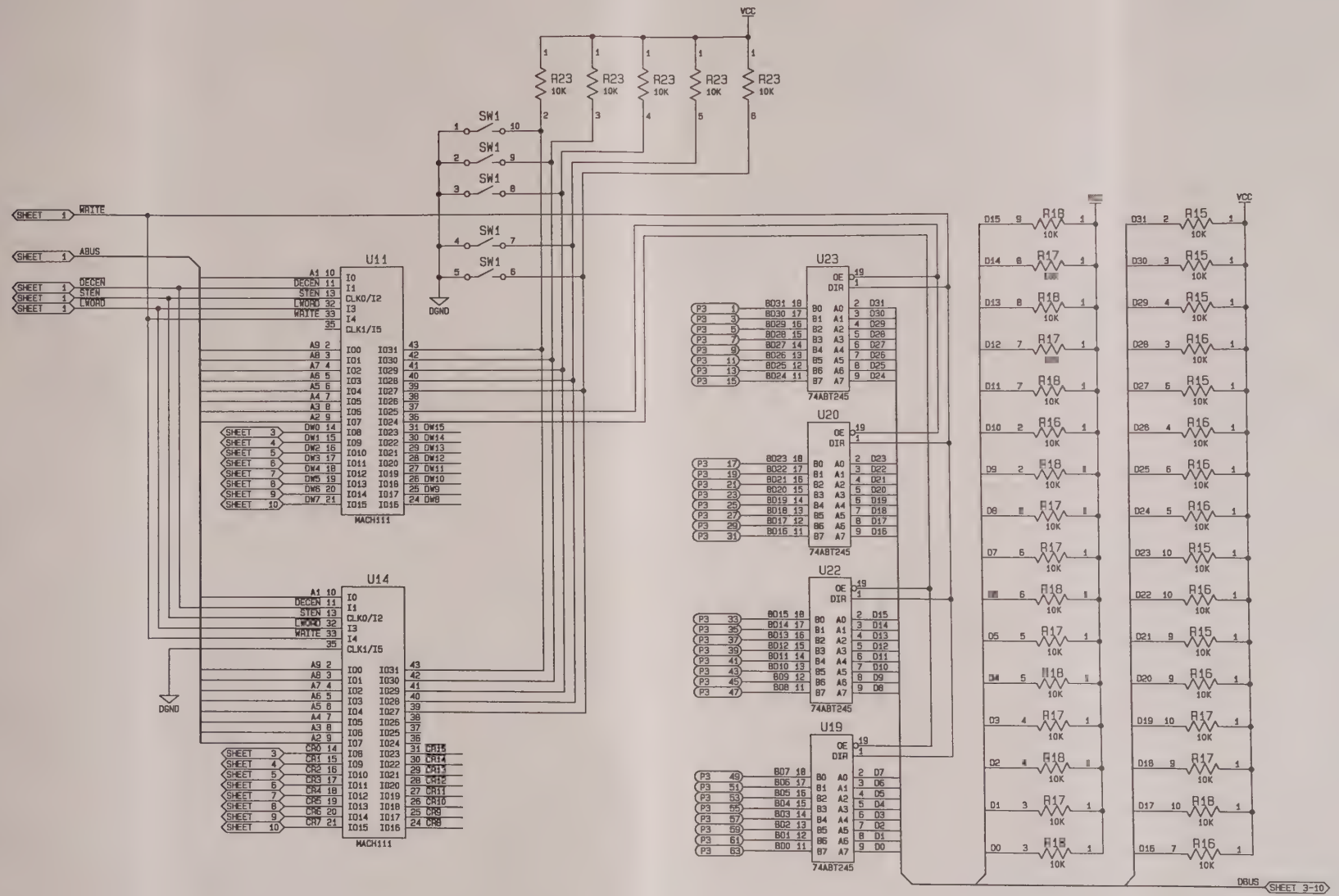
CHER REIS 9/97

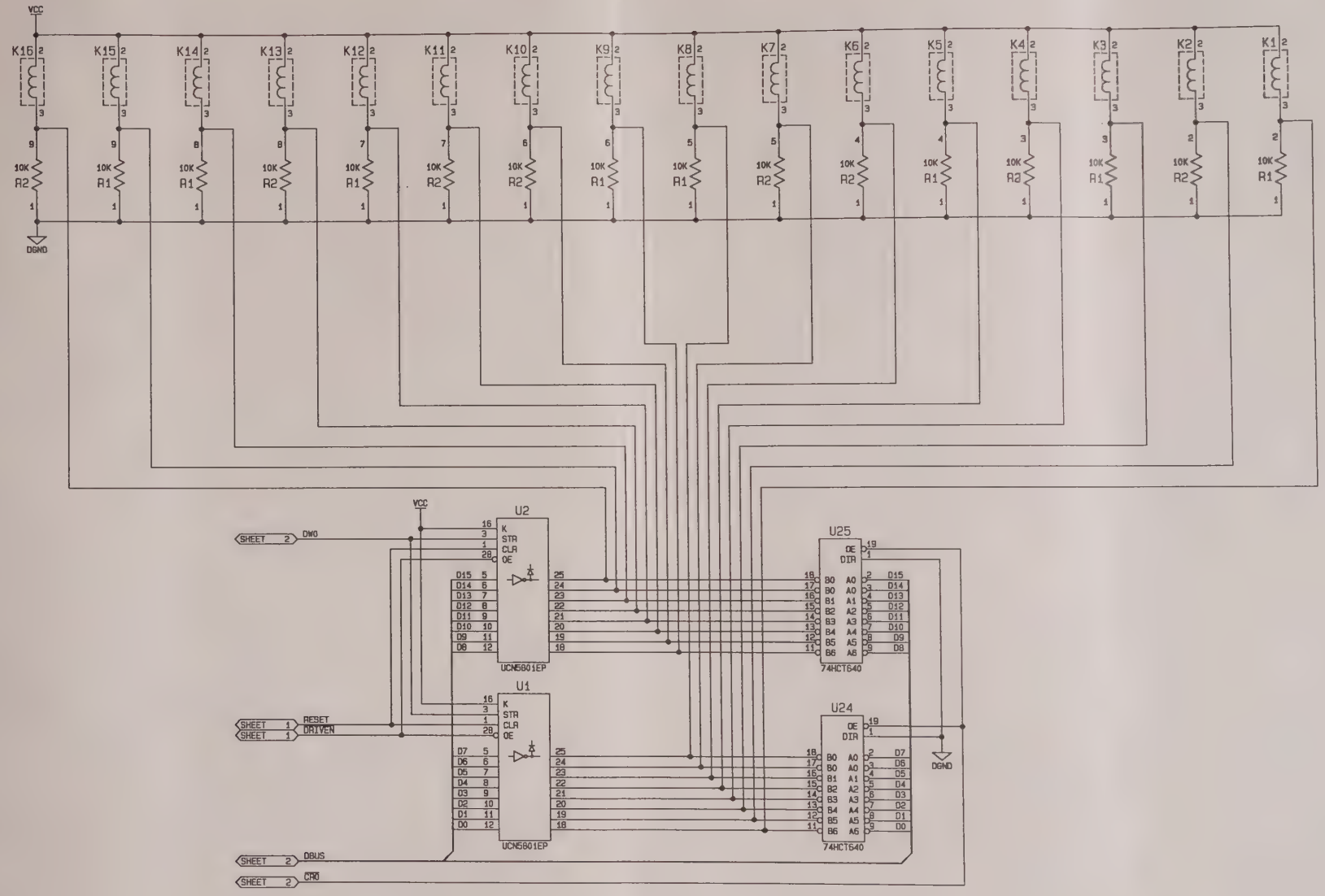
ASCOR INCORPORATED 47790 Westinghouse Drive Fremont, California

SCHEMATIC
FLEXI-SWITCH, DB

D 0B5C1 SCH85002170 A

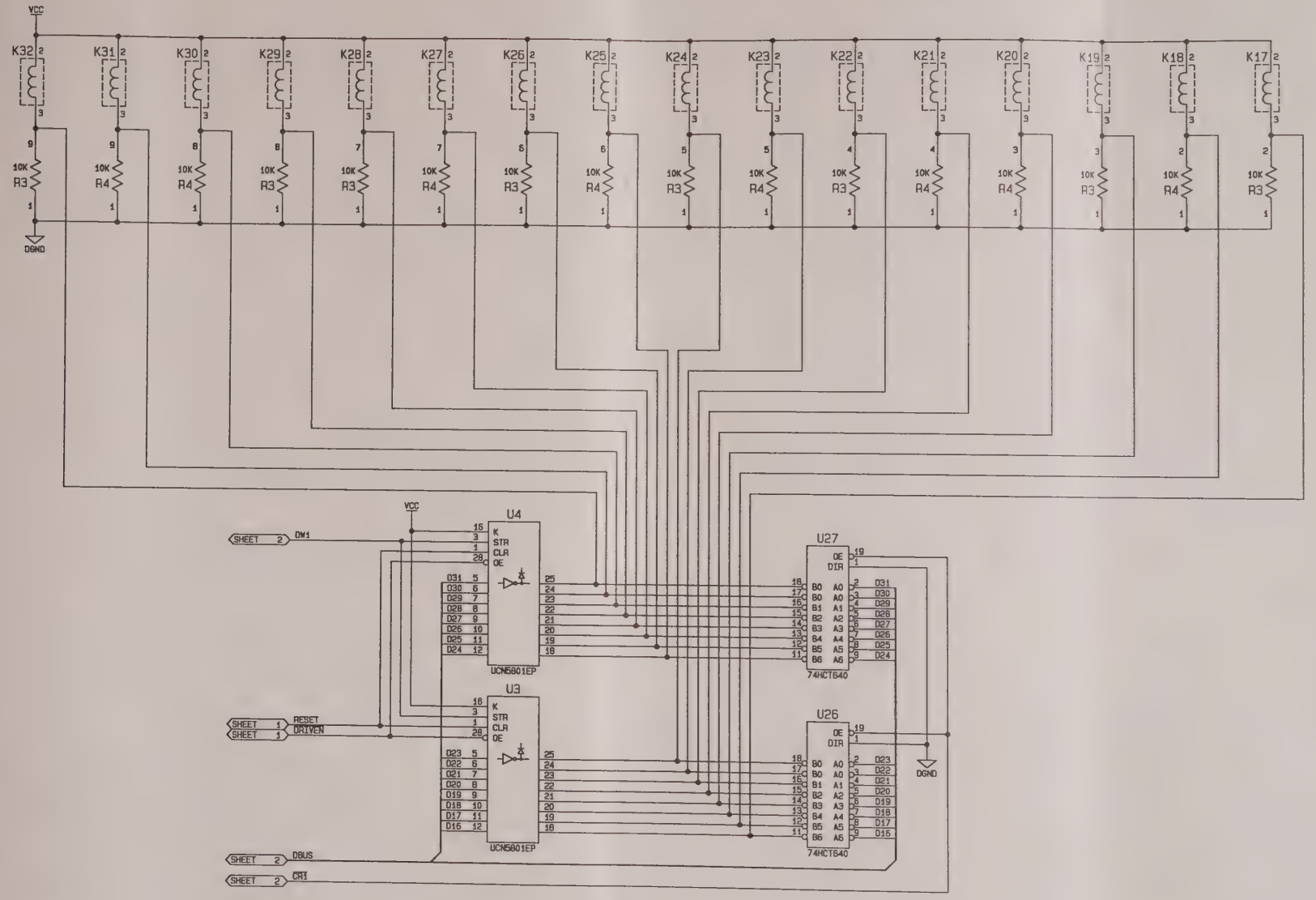
SHEET 1 OF 14

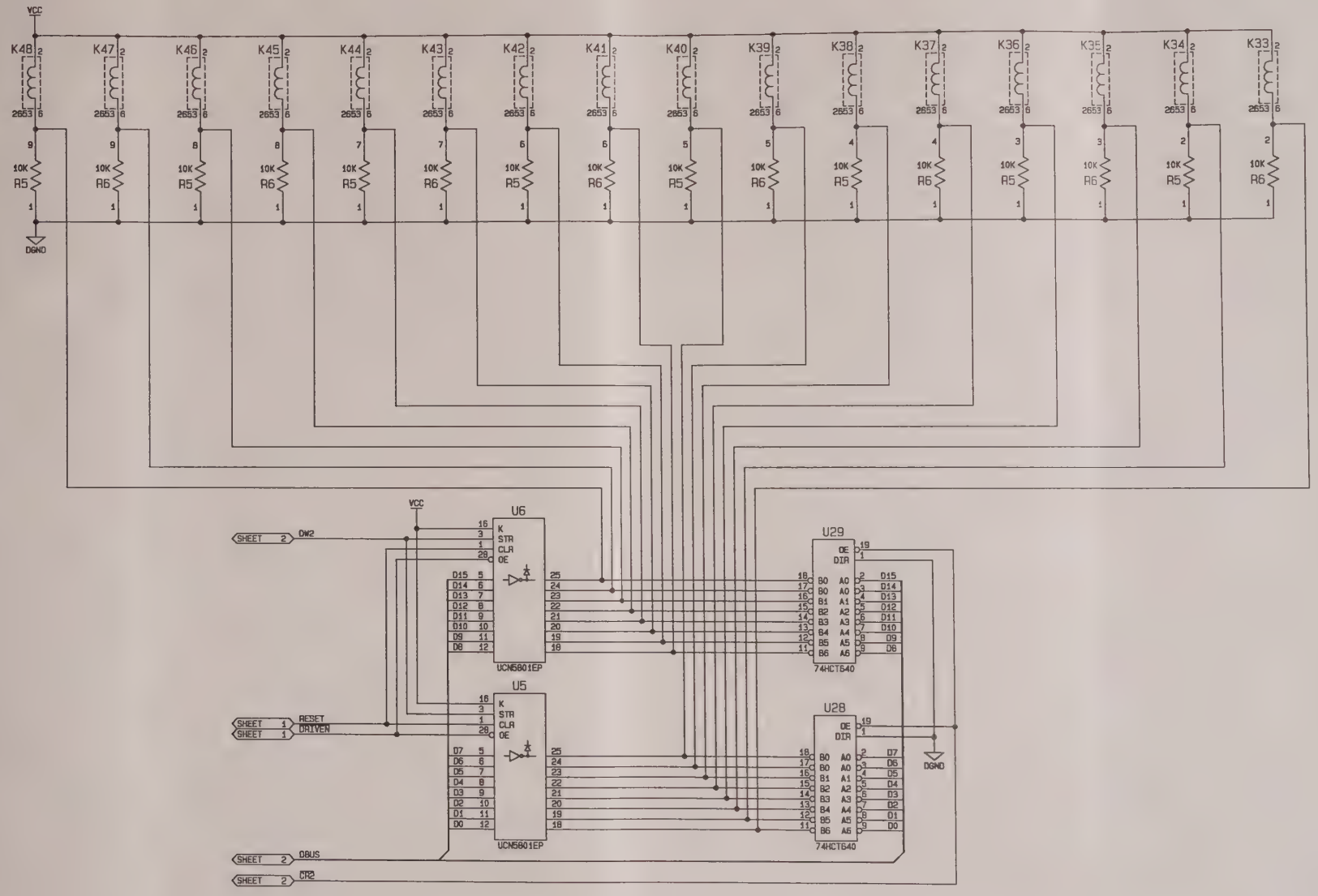

VCC
R23 10K
SW1
DGND
SHEET 1 WRITE
SHEET 1 ABUS
SHEET 1 DECEN
SHEET 1 STEN
SHEET 1 LWORD
U11
U14
MACH111
U23
U20
U22
U19
74ABT245
R18 10K
R17 10K
R15 10K
R16 10K
DBUS
SHEET 3-10

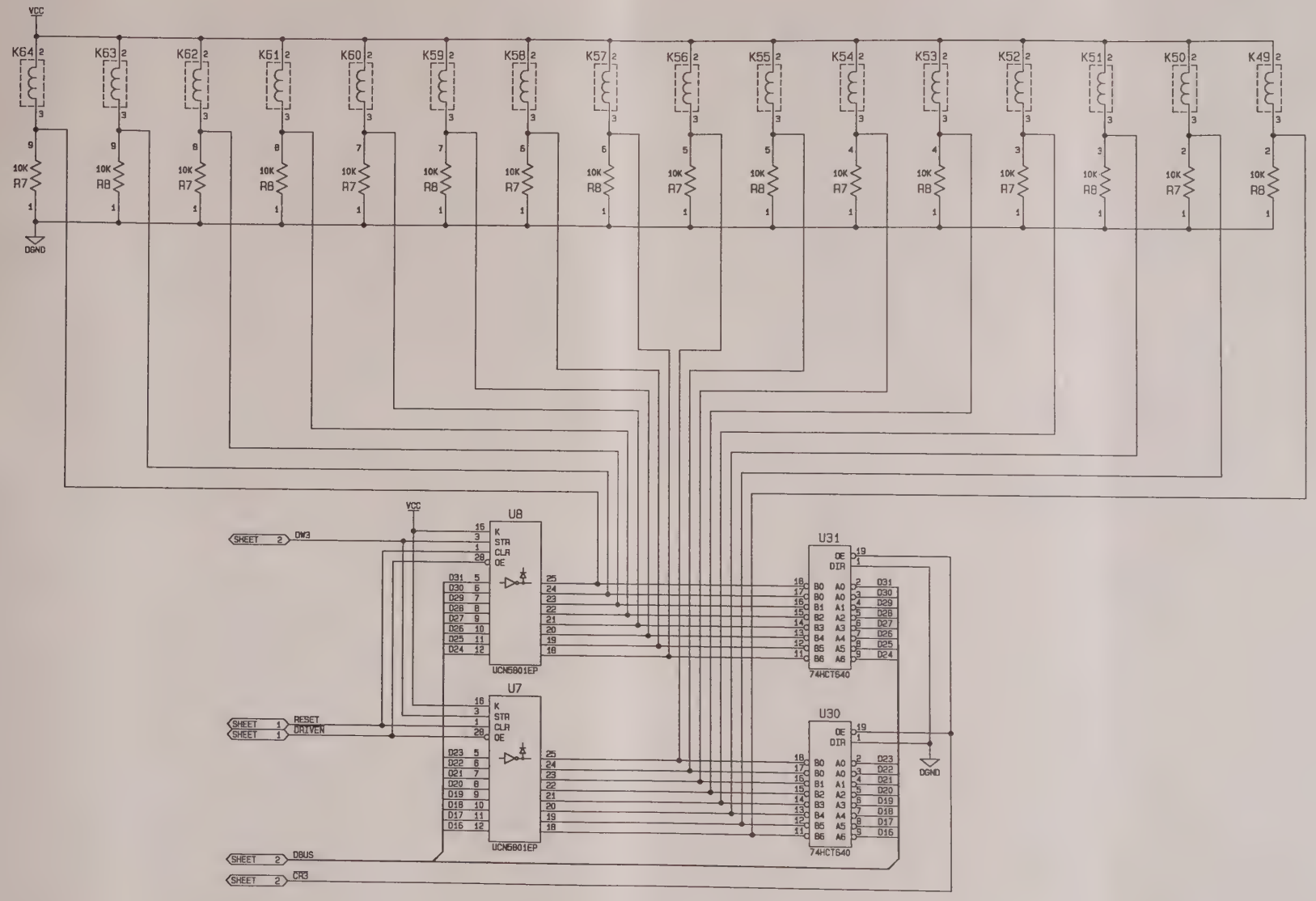


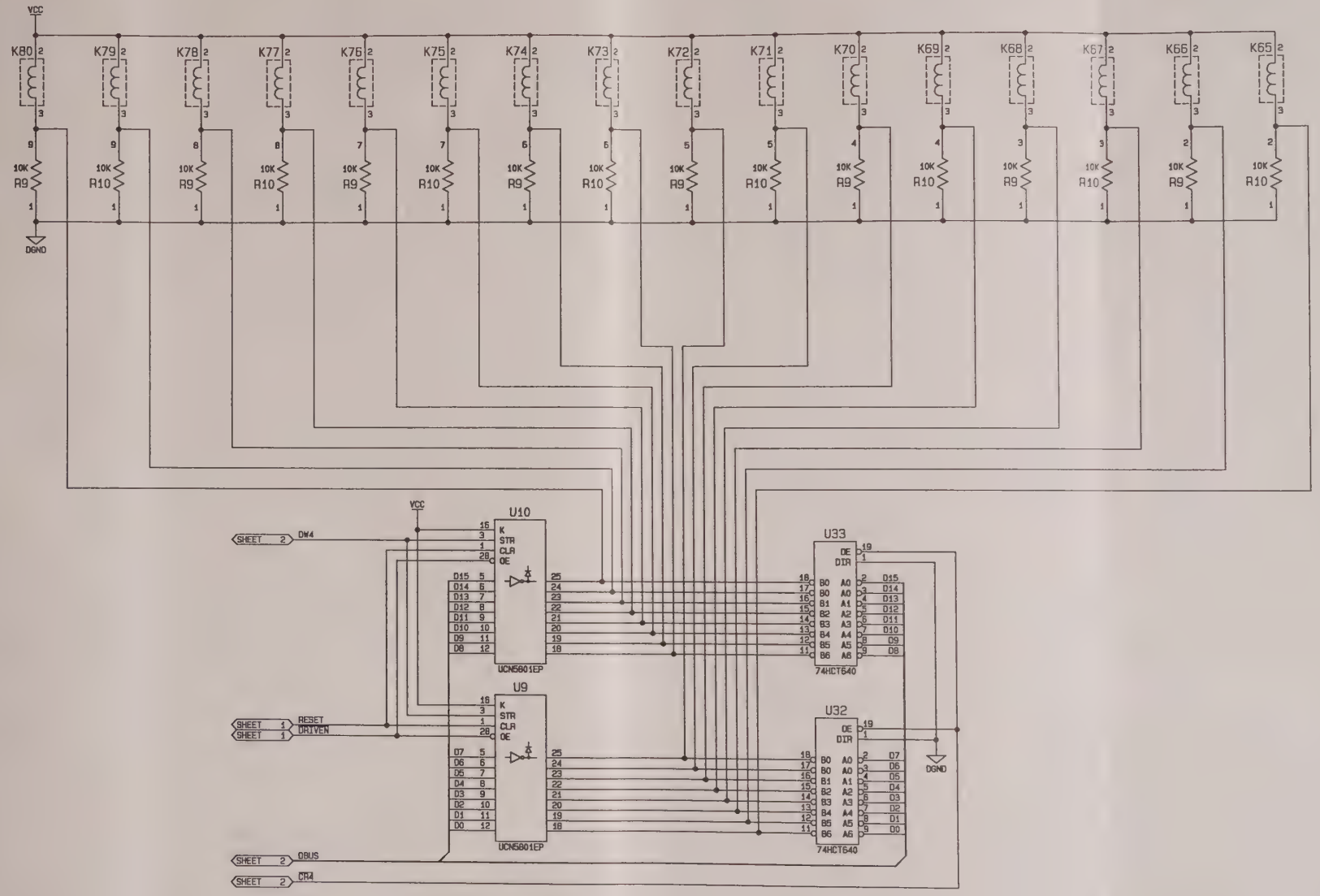
0B5C1	SCH85002170	3	A

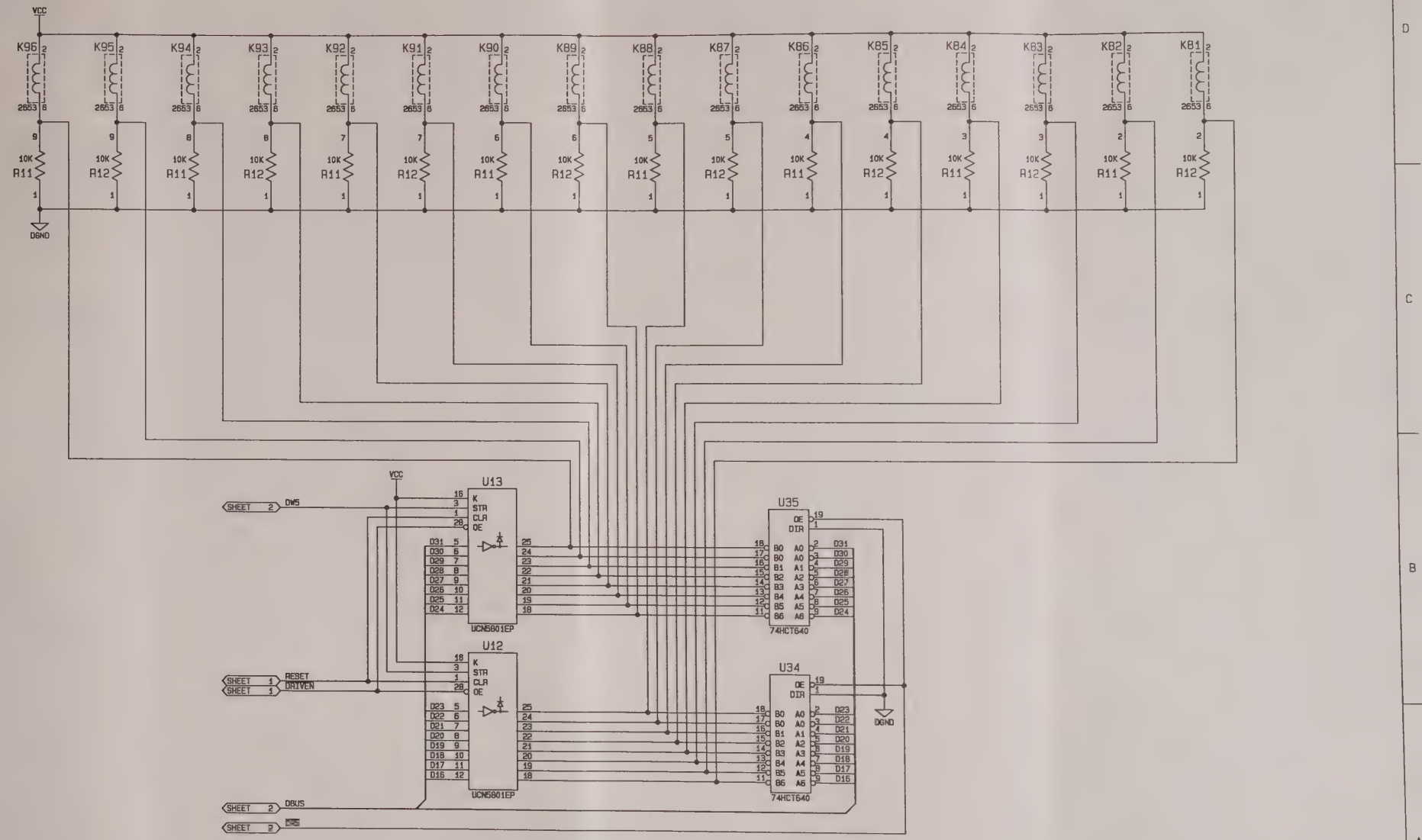
ASCOR INCORPORATED			
CHEA REIS	9/97	D 0B5C1	SCH85002170 A
			SHEET 3

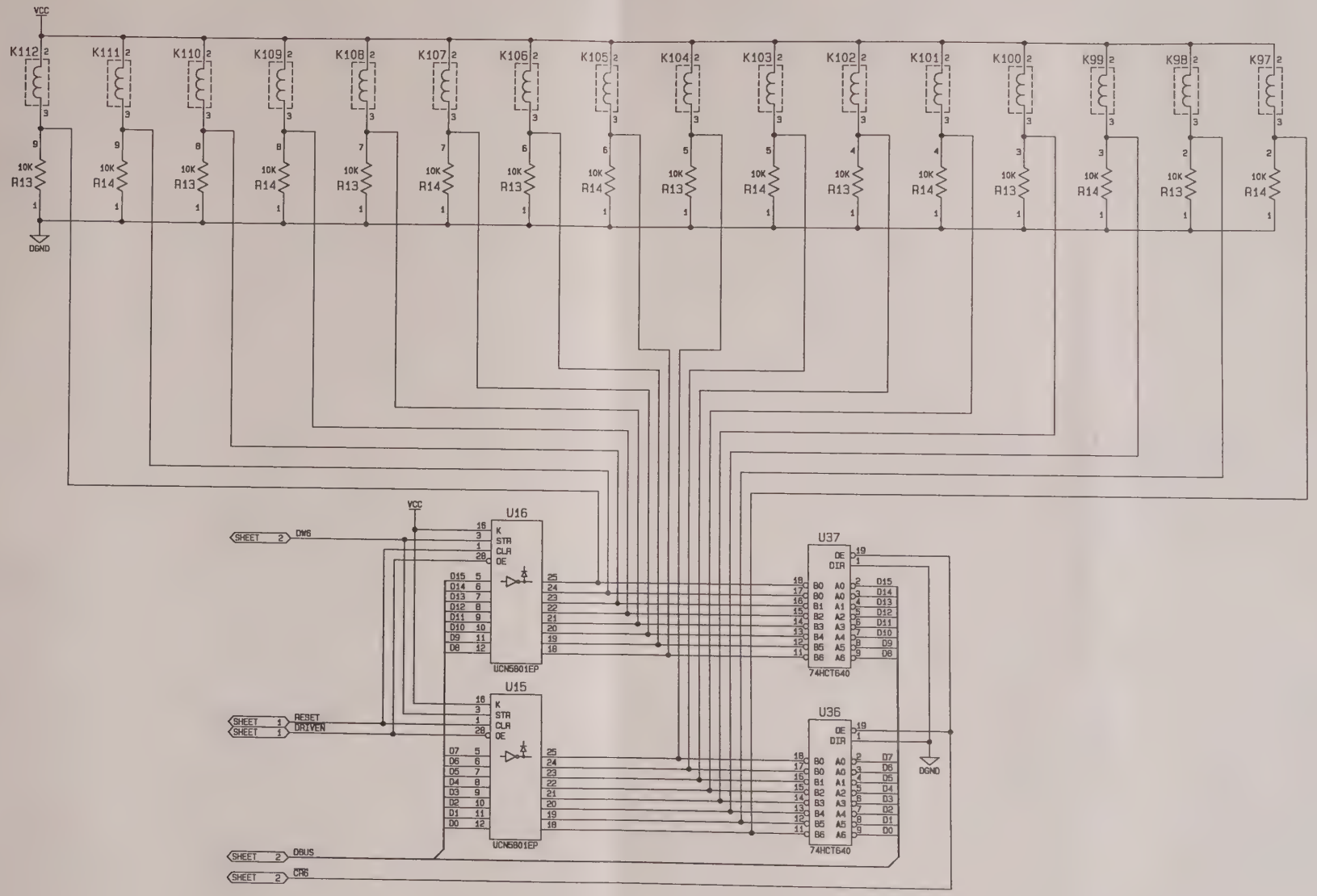

VCC
K32
K31
K30
K29
K28
K27
K26
K25
K24
K23
K22
K21
K20
K19
K18
K17
10K
R3
R4
DGND
U4
U3
U27
U26
K
STR
CLR
OE
UCN5801EP
74HCT640
DIR
SHEET 2 DW1
SHEET 1 RESET
SHEET 1 DRIVEN
SHEET 2 DBUS
SHEET 2 CR1

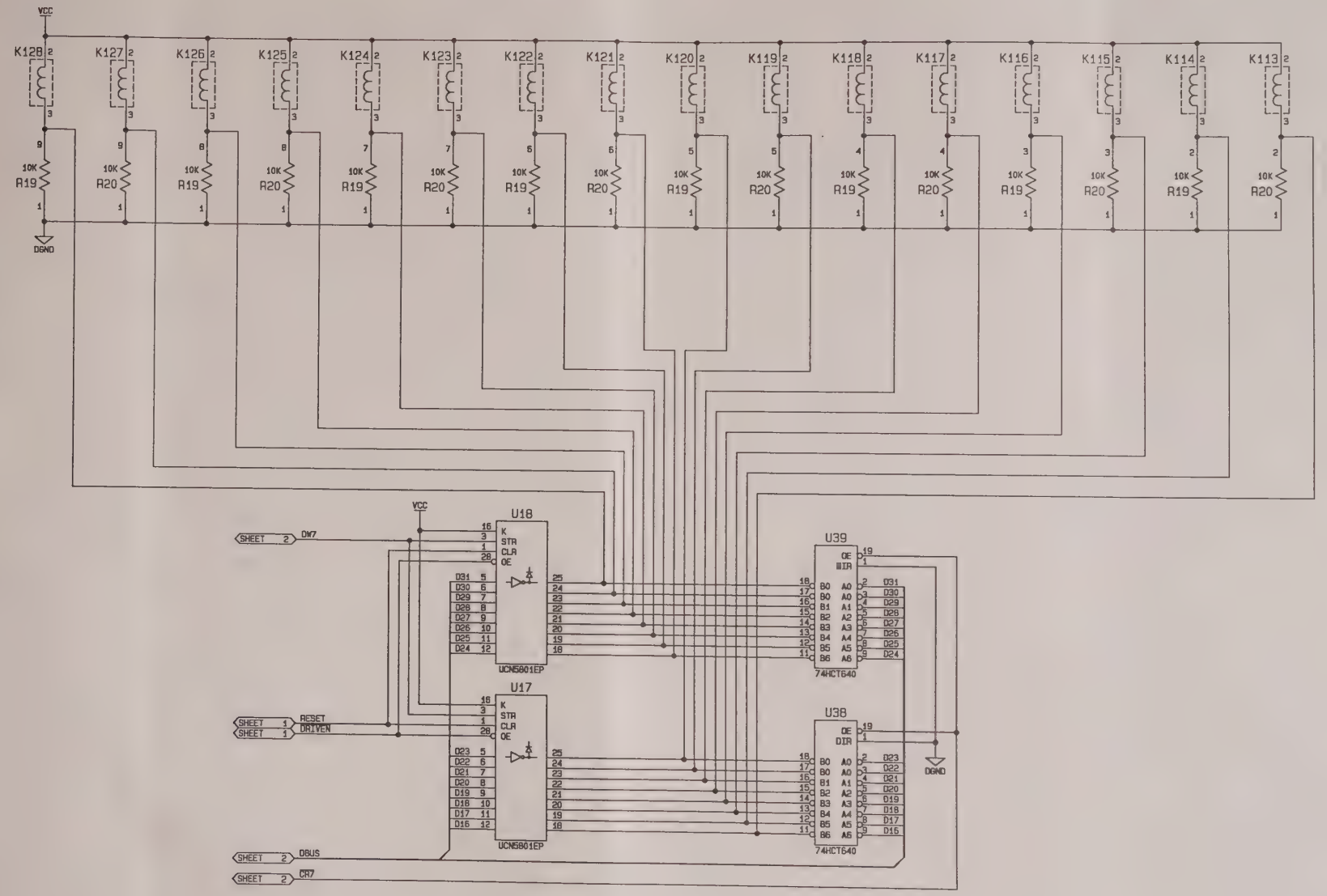

VCC
K48
K47
K46
K45
K44
K43
K42
K41
K40
K39
K38
K37
K36
K35
K34
K33
2653
10K
R5
R6
DGND
U6
U5
U29
U28
K
STR
CLR
OE
UCN5801EP
DIR
74HCT640
SHEET 2 DW2
SHEET 1 RESET
SHEET 1 DRIVEN
SHEET 2 DBUS
SHEET 2 CR2

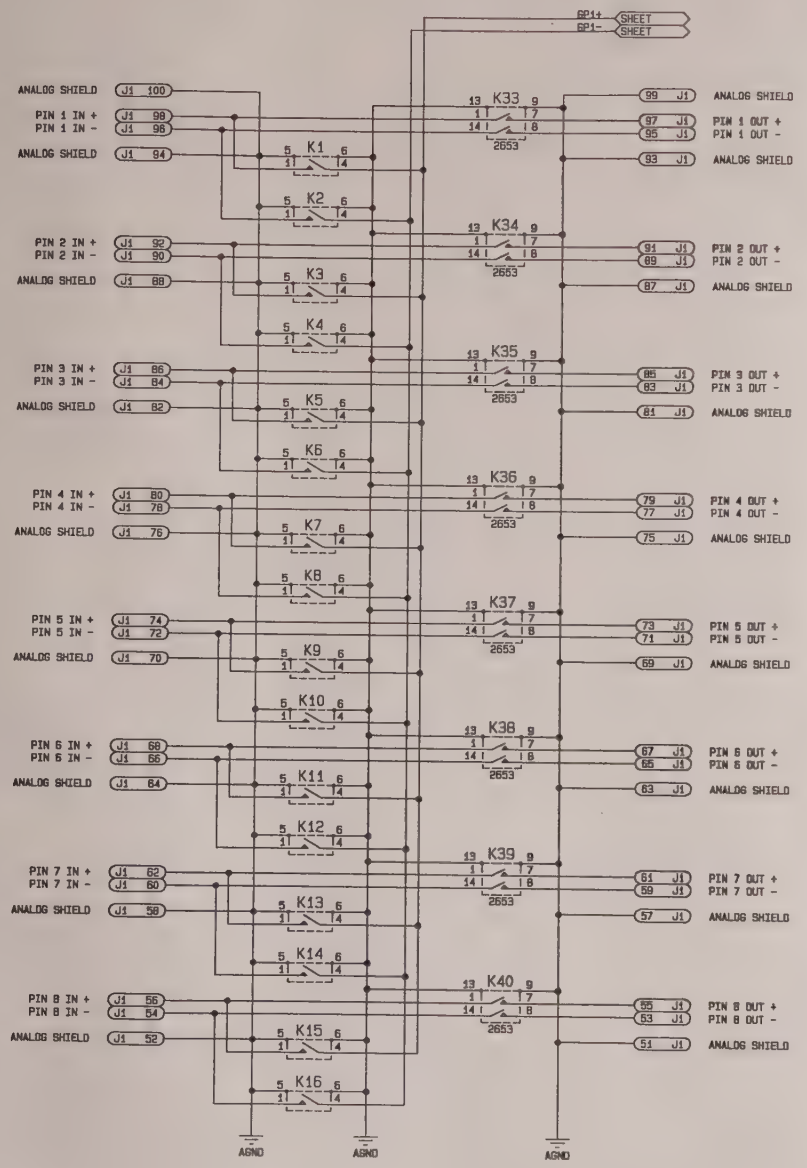

VCC
K64
K63
K62
K61
K60
K59
K58
K57
K56
K55
K54
K53
K52
K51
K50
K49
10K
R7
R8
DGND
U8
U7
U31
U30
K
STR
CLR
OE
DIR
UCN5801EP
74HCT540
SHEET 2 DW3
SHEET 1 RESET
SHEET 1 DRIVEN
SHEET 2 DBUS
SHEET 2 CR3

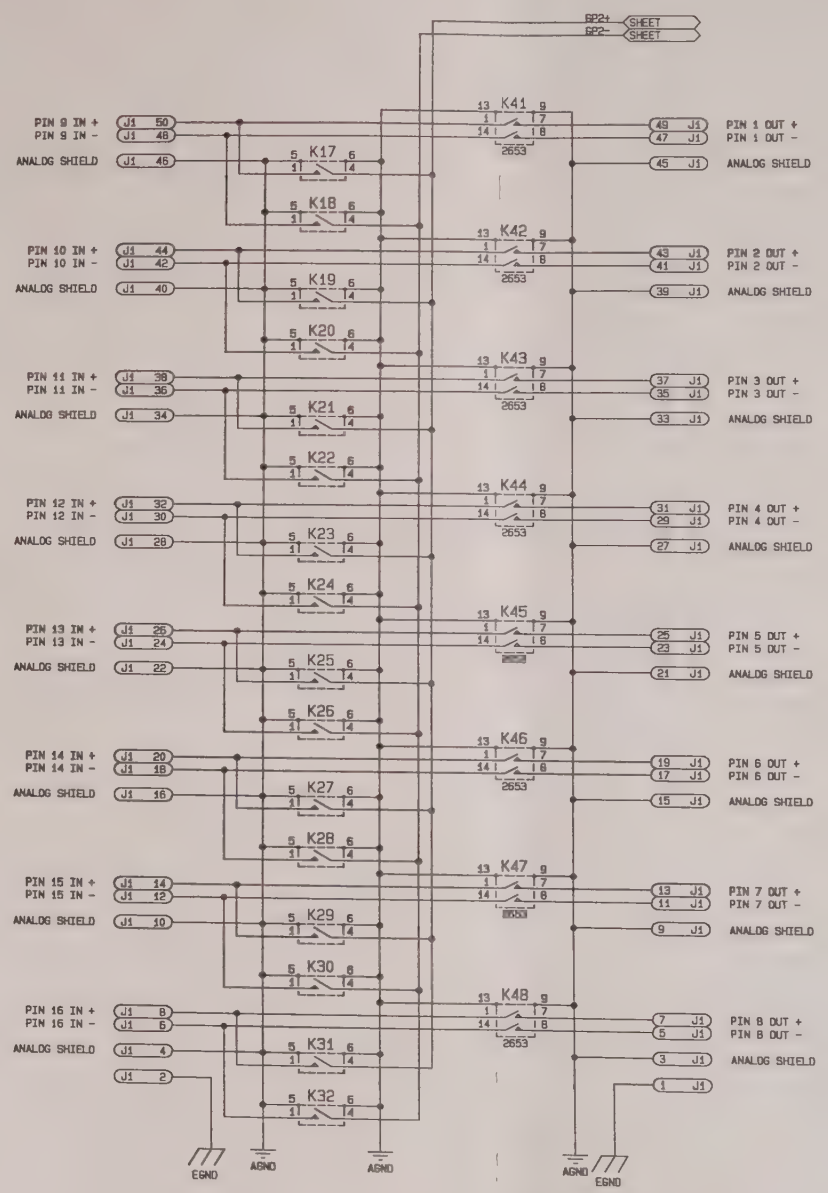

VCC
K80
K79
K78
K77
K76
K75
K74
K73
K72
K71
K70
K69
K68
K67
K66
K65
10K
R9
R10
DGND
U10
U9
U33
U32
K
STR
CLR
OE
DE
DIR
UCN5801EP
74HCT640
SHEET 2 DW4
SHEET 1 RESET
SHEET 1 DRIVEN
SHEET 2 OBUS
SHEET 2 CR4


VCC
K96
K95
K94
K93
K92
K91
K90
K89
K88
K87
K86
K85
K84
K83
K82
K81
2653
10K
R11
R12
DGND
U13
U12
U35
U34
K
STR
CLR
OE
UCN5801EP
74HCT640
DIR
SHEET 2 DW5
SHEET 1 RESET
SHEET 1 DRIVEN
SHEET 2 DBUS


VCC
K112
K111
K110
K109
K108
K107
K106
K105
K104
K103
K102
K101
K100
K99
K98
K97
10K
R13
R14
DGND
U16
U15
U37
U36
K
STR
CLR
OE
DIR
UCN5801EP
74HCT640
SHEET 2 DWS
SHEET 1 RESET DRIVEN
SHEET 2 DBUS
SHEET 2 CWS


VCC
K128
K127
K126
K125
K124
K123
K122
K121
K120
K119
K118
K117
K116
K115
K114
K113
10K
R19
R20
DGND
U18
U17
U39
U38
K
STR
CLR
OE
UCN5801EP
74HCT640
OE
DIR
SHEET 2 DW7
SHEET 1 RESET
SHEET 1 DRIVEN
SHEET 2 DBUS
SHEET 2 CR7


GP1+ SHEET
GP1- SHEET
ANALOG SHIELD J1 100
PIN 1 IN + J1 98
PIN 1 IN - J1 96
ANALOG SHIELD J1 94
PIN 2 IN + J1 92
PIN 2 IN - J1 90
ANALOG SHIELD J1 88
PIN 3 IN + J1 86
PIN 3 IN - J1 84
ANALOG SHIELD J1 82
PIN 4 IN + J1 80
PIN 4 IN - J1 78
ANALOG SHIELD J1 76
PIN 5 IN + J1 74
PIN 5 IN - J1 72
ANALOG SHIELD J1 70
PIN 6 IN + J1 68
PIN 6 IN - J1 66
ANALOG SHIELD J1 64
PIN 7 IN + J1 62
PIN 7 IN - J1 60
ANALOG SHIELD J1 58
PIN 8 IN + J1 56
PIN 8 IN - J1 54
ANALOG SHIELD J1 52
K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16
K33 K34 K35 K36 K37 K38 K39 K40
2653
99 J1 ANALOG SHIELD
97 J1 PIN 1 OUT +
95 J1 PIN 1 OUT -
93 J1 ANALOG SHIELD
91 J1 PIN 2 OUT +
89 J1 PIN 2 OUT -
87 J1 ANALOG SHIELD
85 J1 PIN 3 OUT +
83 J1 PIN 3 OUT -
81 J1 ANALOG SHIELD
79 J1 PIN 4 OUT +
77 J1 PIN 4 OUT -
75 J1 ANALOG SHIELD
73 J1 PIN 5 OUT +
71 J1 PIN 5 OUT -
69 J1 ANALOG SHIELD
67 J1 PIN 6 OUT +
65 J1 PIN 6 OUT -
63 J1 ANALOG SHIELD
61 J1 PIN 7 OUT +
59 J1 PIN 7 OUT -
57 J1 ANALOG SHIELD
55 J1 PIN 8 OUT +
53 J1 PIN 8 OUT -
51 J1 ANALOG SHIELD
AGND AGND AGND

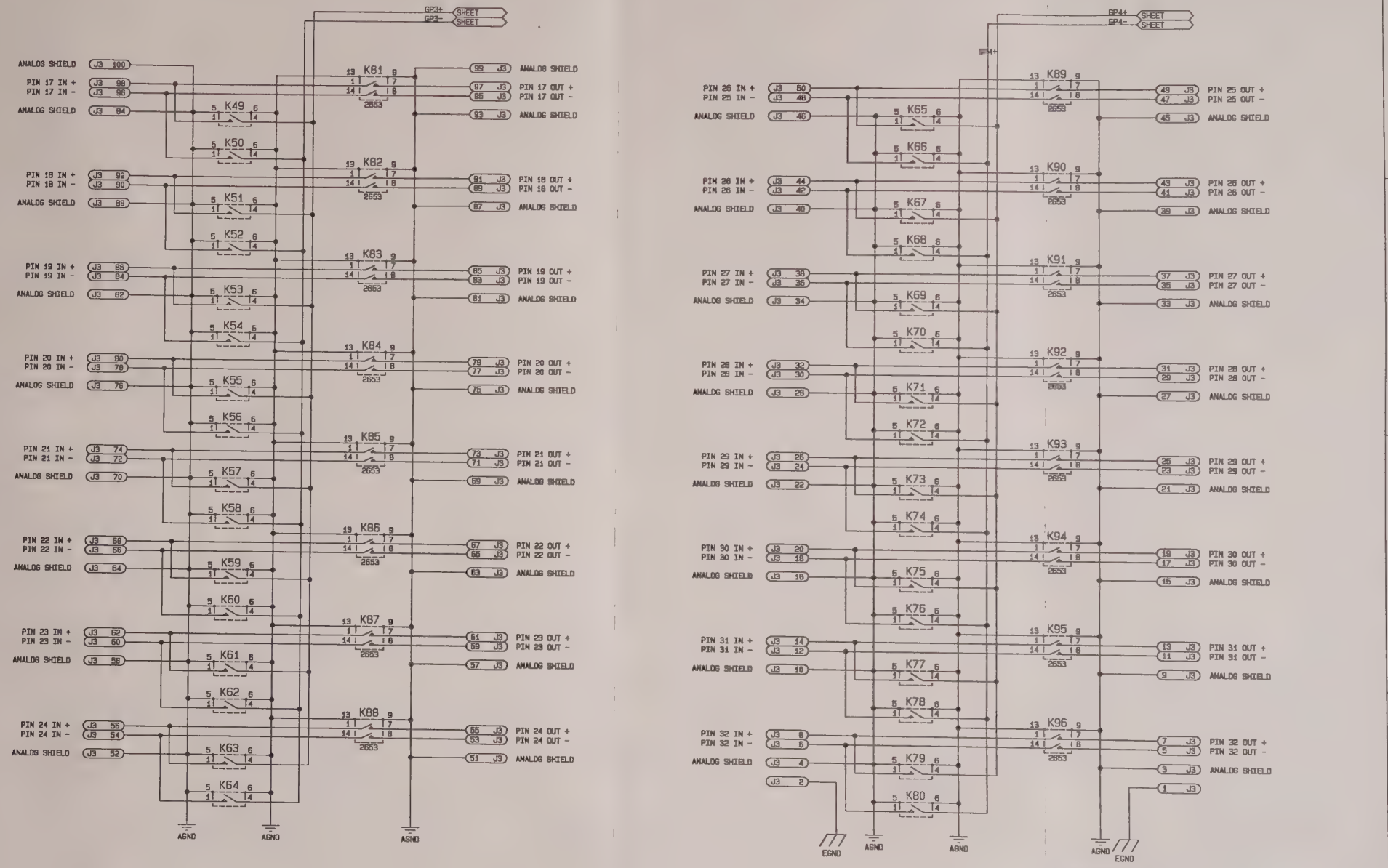

GP2+ SHEET
GP2- SHEET
PIN 9 IN + J1 50
PIN 9 IN - J1 48
ANALOG SHIELD J1 46
PIN 10 IN + J1 44
PIN 10 IN - J1 42
ANALOG SHIELD J1 40
PIN 11 IN + J1 38
PIN 11 IN - J1 36
ANALOG SHIELD J1 34
PIN 12 IN + J1 32
PIN 12 IN - J1 30
ANALOG SHIELD J1 28
PIN 13 IN + J1 26
PIN 13 IN - J1 24
ANALOG SHIELD J1 22
PIN 14 IN + J1 20
PIN 14 IN - J1 18
ANALOG SHIELD J1 16
PIN 15 IN + J1 14
PIN 15 IN - J1 12
ANALOG SHIELD J1 10
PIN 16 IN + J1 8
PIN 16 IN - J1 6
ANALOG SHIELD J1 4
J1 2
K17 K18 K19 K20 K21 K22 K23 K24 K25 K26 K27 K28 K29 K30 K31 K32
K41 K42 K43 K44 K45 K46 K47 K48
2653
49 J1 PIN 1 OUT +
47 J1 PIN 1 OUT -
45 J1 ANALOG SHIELD
43 J1 PIN 2 OUT +
41 J1 PIN 2 OUT -
39 J1 ANALOG SHIELD
37 J1 PIN 3 OUT +
35 J1 PIN 3 OUT -
33 J1 ANALOG SHIELD
31 J1 PIN 4 OUT +
29 J1 PIN 4 OUT -
27 J1 ANALOG SHIELD
25 J1 PIN 5 OUT +
23 J1 PIN 5 OUT -
21 J1 ANALOG SHIELD
19 J1 PIN 6 OUT +
17 J1 PIN 6 OUT -
15 J1 ANALOG SHIELD
13 J1 PIN 7 OUT +
11 J1 PIN 7 OUT -
9 J1 ANALOG SHIELD
7 J1 PIN 8 OUT +
5 J1 PIN 8 OUT -
3 J1 ANALOG SHIELD
1 J1
EGND AGND AGND AGND EGND

ASCOR CHERRY

CHER REIS 9/97

D 0B5C1 SCH85002170 A

11

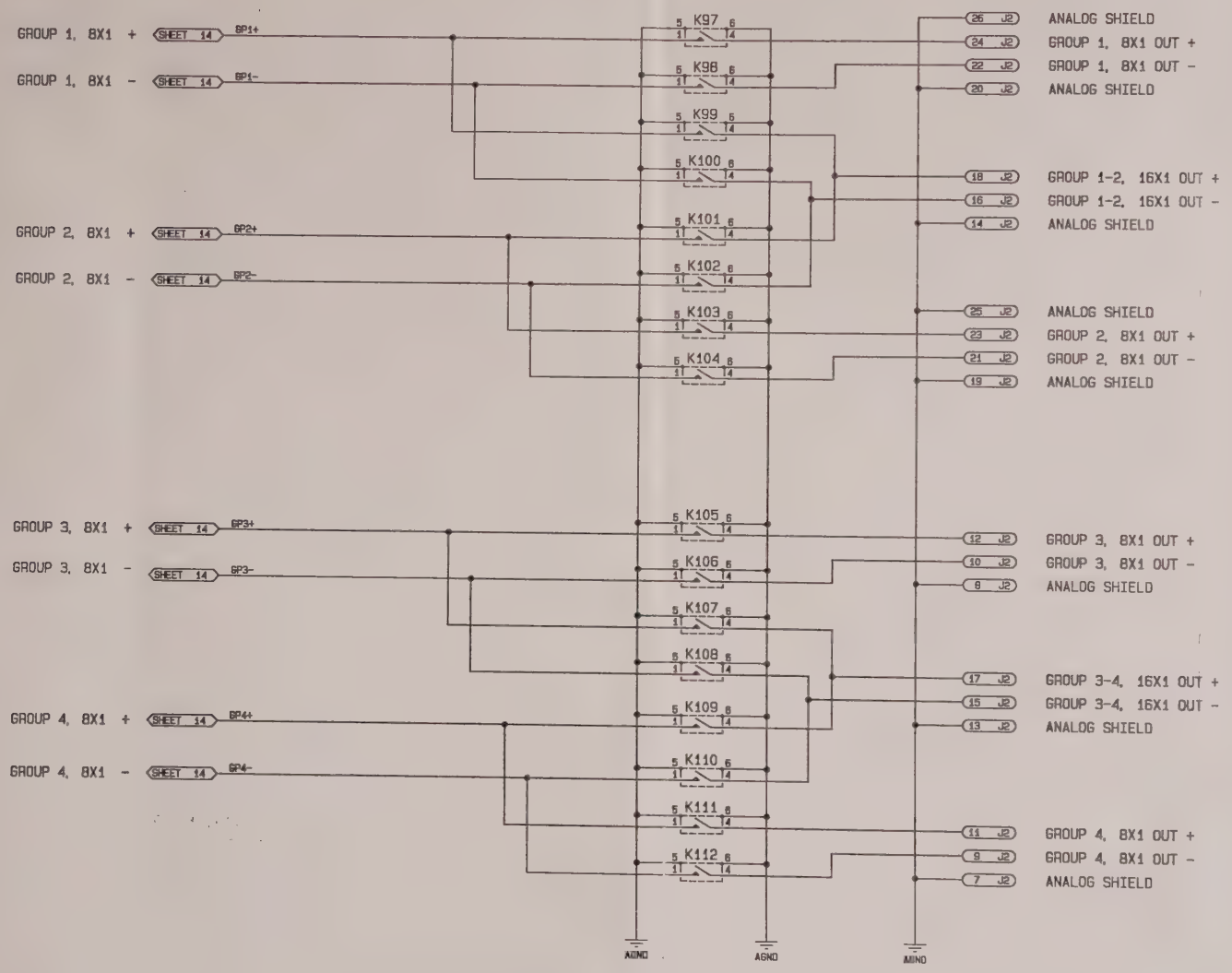


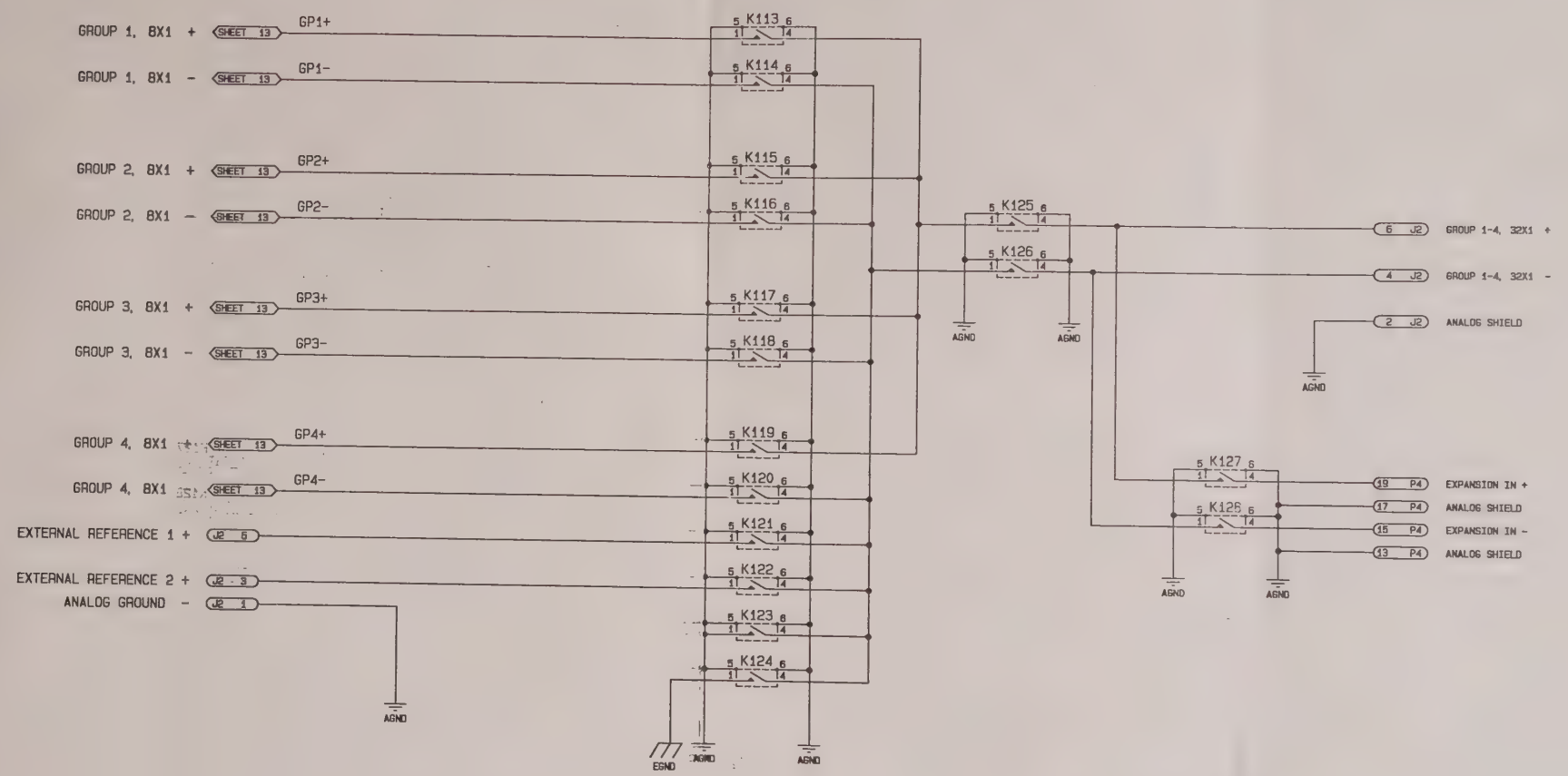
ASCOR INCORPORATED

CHER REIS 9/97

D 0B5C1 SCH85002170 A

SHEET 12


GROUP 1, 8X1 + SHEET 14 GP1+
GROUP 1, 8X1 - SHEET 14 GP1-
GROUP 2, 8X1 + SHEET 14 GP2+
GROUP 2, 8X1 - SHEET 14 GP2-
GROUP 3, 8X1 + SHEET 14 GP3+
GROUP 3, 8X1 - SHEET 14 GP3-
GROUP 4, 8X1 + SHEET 14 GP4+
GROUP 4, 8X1 - SHEET 14 GP4-
K97
K98
K99
K100
K101
K102
K103
K104
K105
K106
K107
K108
K109
K110
K111
K112
AGND
AGND
AGND
26 J2 ANALOG SHIELD
24 J2 GROUP 1, 8X1 OUT +
22 J2 GROUP 1, 8X1 OUT -
20 J2 ANALOG SHIELD
18 J2 GROUP 1-2, 16X1 OUT +
16 J2 GROUP 1-2, 16X1 OUT -
14 J2 ANALOG SHIELD
25 J2 ANALOG SHIELD
23 J2 GROUP 2, 8X1 OUT +
21 J2 GROUP 2, 8X1 OUT -
19 J2 ANALOG SHIELD
12 J2 GROUP 3, 8X1 OUT +
10 J2 GROUP 3, 8X1 OUT -
8 J2 ANALOG SHIELD
17 J2 GROUP 3-4, 16X1 OUT +
15 J2 GROUP 3-4, 16X1 OUT -
13 J2 ANALOG SHIELD
11 J2 GROUP 4, 8X1 OUT +
9 J2 GROUP 4, 8X1 OUT -
7 J2 ANALOG SHIELD


GROUP 1, 8X1 + SHEET 13 GP1+
GROUP 1, 8X1 - SHEET 13 GP1-
GROUP 2, 8X1 + SHEET 13 GP2+
GROUP 2, 8X1 - SHEET 13 GP2-
GROUP 3, 8X1 + SHEET 13 GP3+
GROUP 3, 8X1 - SHEET 13 GP3-
GROUP 4, 8X1 + SHEET 13 GP4+
GROUP 4, 8X1 - SHEET 13 GP4-
EXTERNAL REFERENCE 1 + J2 5
EXTERNAL REFERENCE 2 + J2 3
ANALOG GROUND - J2 1
AGND
K113
K114
K115
K116
K117
K118
K119
K120
K121
K122
K123
K124
EGND
K125
K126
K127
6 J2 GROUP 1-4, 32X1 +
4 J2 GROUP 1-4, 32X1 -
2 J2 ANALOG SHIELD
19 P4 EXPANSION IN +
17 P4 ANALOG SHIELD
15 P4 EXPANSION IN -
13 P4 ANALOG SHIELD

47790 Westinghouse Drive ■ Fremont, CA 94539-7485 ■ Telephone: (510) 490-2300 ■ Fax:(510) 490-8493